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THE REMOVAL OF THE FAUCIAL TONSILS AS A MEANS OF RELIEVING CATARRHAL DEAFNESS.*

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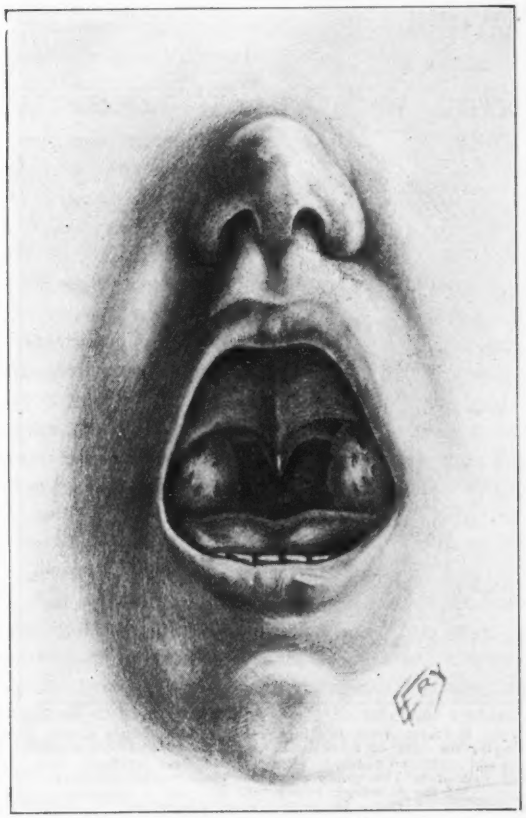
The treatment of catarrhal deafness has long exercised the ingenuity of otologists, and in the course of years every imaginable remedy has been tried, found its advocates and its opponents. The injection of air, vapors, sprays and free fluids into the middle ear by way of the Eustachian tube—the drum membrane being intact—has been found beneficial by some, and positively harmful by others. The application of silver nitrate to the orificial region of the tubes, while regarded by some as a remedy of the first magnitude, is unhesitatingly condemned by others, possibly on account of the difficult technic in the hands of the general practitioner. The difficulty is not only that so many individual conditions and personal idiosyncrasies have to be observed and taken into consideration, which may make any one method successful in one case and non-effective or even harmful in another, but also that there are—even under our present advanced knowledge—cases which resist treatment by all methods taken together.

We have been for the past fifteen years in a similar state of experimentation in regard to the removal of a certain class of faucial tonsils. During that period, up to the present day, we have been endeavoring to evolve and improve a method of removing that class of faucial tonsils which develops, or becomes diseased, *within* the walls of the mouth and pharynx. In the course of my practice I have striven to add my mite toward the solution of the problem, and one of the results I have attained in this direction will be described later on in this paper.

The immediate point of interest, however, is that many of the patients who underwent this operation for the removal of the faucial tonsils, and who at the same time suffered from catarrhal deafness, volunteered the statement that a decided improvement had taken place in regard to their aural efficiency, in regard both to hearing and to unpleasant sensations. It really did not require much reflection to bring the two complaints into relation to each other, but whatever reflection there was, it



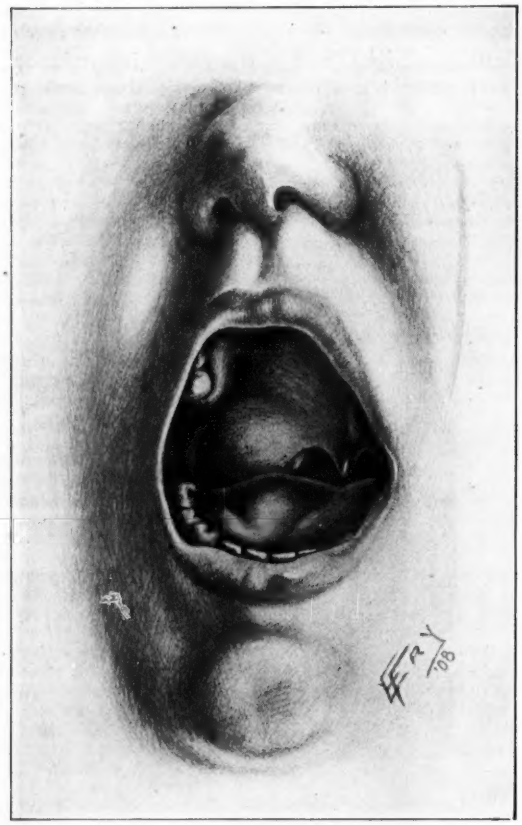
Group A illustrates the deep intramural or subpalatal type, in the act of gagging. A very potent factor in tubal stenosis and middle ear disease.

prompted me in a series of cases to remove these hidden and so-called submerged masses with the additional view of relieving the symptoms of progressive catarrhal deafness or impairment of the hearing. Indeed, theoretically, we should expect decided relief from the operation in the region of the isthmus tubæ, as nearly all chronic congestion

* Read before the American Otological Society, New York City, June, 1907. Ilustrations added since the paper was read.

and inflammation in this region is associated with some interference primarily with the venous circulation and secondarily with the arterial circulation. Similarly, it has been observed, that the cervical lymphatics are, as a rule, also enlarged in these cases.

Now, it is evident that these tonsillar and cervical hypertrophied lymphatics act injuriously by exercising pressure upon the cervical sympathetic nerves as well as upon the large and small veins of the neck. In a series of cases that had been treated



Group B (taken from life in the author's Polyclinic clinic) illustrates the type of tonsils that are more or less pedunculated, and concerning which most authors have confined their remarks. This group represents about twenty per cent. of the pathologic tonsils, and are only a moderate factor in causing tubal congestion.

by the usual method of putting the nose and rhinopharynx into proper condition by inflating the ears, bougieing the tubes, etc., with elimination of the sclerotic and anchylosed class which Dr. Roosa has cleverly set aside for Gabriel's trumpet, the difficulties encountered when attempts were made at removing tonsils of the class referred to were much greater than a description of the average cases would lead one to expect, and they must be experienced in their worst form to be appreciated. For it should be remembered that the deeper parts of the diseased masses are frequently situated one-half to three-quarters of an inch deep, measuring from a plane that crosses the pharyngeal margins of the tonsillar pillars.

The author, in recognizing in the course of his practice the importance of the operation as well as the difficulties encountered by the surgeon in the attempt to become master of the situation, has selected a set of instruments, which he herewith presents, as being the best he has so far found for the removal of this class of usually neglected tonsillar masses. The relief in some of the long standing cases of catarrhal deafness has been so marked

Fig. 1. One of the modifications of the author's tonsil punch forceps. The movable blades are fixed within the stationary ones, and act as double scissors.

that one might be tempted to attribute the effect rather to hypnotic suggestion than to scientific achievement.

I have not kept a complete record of cases, benefited or not, because they were not operated upon for the immediate purpose of relieving catarrhal deafness, but rather—primarily or secondarily—for the relief of diseased conditions in the throat, cases

Fig. 2. The author's irido-platinum hypodermatic needle, one and seven-eighths inches long. Used for local anesthesia around the faucial tonsils. The point is filed down to about 45 degrees. It does not rust.

which always injuriously affect the throat or cervical glands, irrespective of the ear. The cases have ranged from childhood to sixty years of age.

In view of the fact, then, that we are still confronted with cases of catarrhal deafness in which all the available methods fail to give relief, it seems but proper for me to explain the details of the op-

eration referred to, as practiced by me, in the hope that many sufferers whose ailment has thus far baffled the surgeon's ken, may be benefited and relieved.

The operation is commenced by thoroughly cocaining the surface and crypts of the tonsils with a ten per cent. solution on a cotton swab covered with crystals. In ten to fifteen minutes this is followed by a hypodermatic injection of a one-eighth of one per cent. sterile solution of cocain into the mucous membrane and connective tissue around the

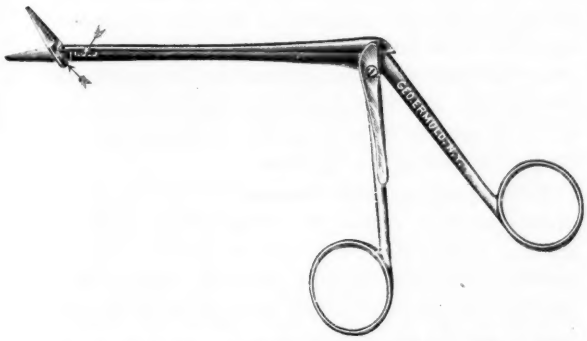


Fig. 3. One of the modifications of the author's automatic scissors. The arrows indicate the sliding lever and sliding bolt which force the short blade against its fellow. These scissors cause a minimum of obstruction in the field of vision.

capsules of the tonsils. A hypodermatic needle which I have found especially useful for this procedure is here illustrated, a set of improved scissors

Fig. 4. Two of the modifications of the author's curved automatic tonsil scissors—rights and lefts, with shoulder lever and sliding bolts, which push the short blades forcibly against the fixed ones during the act of cutting.

for cutting around the tonsil, designed for lifting the tonsils more readily from their bed. A small guillotine, a snare and forceps are used for completing the operation.

In certain cases the offensive mass is so deeply situated within the soft palate that it is necessary to grasp it and so to speak involute the tonsil sheath. The masses which now lie on the base of the tongue in an involuted state are held by a pair of dull forceps or a tenaculum, and while the surgeon with one hand controls this instrument, with the other he removes the masses piecemeal by means of an excisor forceps.

In children I prefer a general anesthetic, as this enables the surgeon to perform the operation much more satisfactorily.

I will not burden you with the detailed histories of many cases, but would urge upon you to try the method I have described in cases of tubal stenosis and progressive catarrhal deafness I have referred to, trusting that it will give relief when all other methods have failed.

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INTRACRANIAL LESIONS OF OTITIC ORIGIN.

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It may be taken as a truism that a discharging ear, either acute or chronic, is a dangerous ear. Also that an acute fulminating otitis media purulenta is more dangerous than a chronic purulent otitis media. Considering the great number of cases of acute purulent inflammation of the middle ear that recover completely without any complications, it would seem that my truism is not a truism at all; however, the proof that I shall offer will convince all of the truthfulness of the statement that a discharging ear is a dangerous ear.

The avenue of extension of infection to the brain from the middle ear may be by metastasis or direct extension by continuity of tissue, through the roof of the tympanic cavity; the mastoid antrum; the mastoid cells; the internal ear; the internal auditory canal, as reported by Pierce and Toynbee; the aqueductus Fallopii; the carotid canal; the foramina for nutrient vessels to the middle ear; communicating veins with the jugular fossa; the foramen for the auricular branch of the vagus nerve and the fissure of Glaser, which contains the tympanic branch of the internal maxillary artery; by the vascular interspaces between the unossified and the ununited osseous portions of the temporal bone, especially in infants; and by the small venules traversing the mastoid region.

Among the intracranial lesions which may originate from the ear and its adnexa, are tumors,

insanity, cholesteatomata, acute or chronic cerebral or cerebellar abscesses, leptomeningitis, pachymeningitis, basilar meningitis, serous meningitis, meningism, as described by Chevalier Jackson, epidural abscess, sigmoid sinus thrombosis, jugular and sinus thrombosis, sinus phlebitis, cavernous sinus thrombosis, brain tumors, local cerebral softening, caseous degeneration, gangrene, thrombosis of the cerebral sinuses, ulceration of the brain and primary bulb thrombosis. The last condition, however, is one open to question.

It is difficult to secure accurate statistics in regard to the frequency of brain complication in acute or chronic ear diseases; however, in a review of twelve thousand seven hundred and forty-four cases of suppurative ear disease treated at the Manhattan Eye and Ear Hospital, Harris found that sixty cases suffered from meningitis, twenty-three from sinus thrombosis; and seven from abscess; six of which were located in the temporal lobe, and one in the cerebellum. In my own practice, during the past two years, five cases of sinus thrombosis have been observed, one abscess of the brain and two cases of meningitis. My five cases of sinus thrombosis all followed an acute otitis media purulenta, three of which died and two recovered. It is from this experience that I feel justified in making the statement in the beginning of this paper, that either an acute or chronic discharging ear is a dangerous ear.

The prognosis of intracranial complications depends primarily upon early operative measures, and secondarily upon the thoroughness of the operation. There always comes the question, in the treatment of acute mastoiditis, as to the indications for abortive treatment and the time that should elapse before resorting to surgical measures. There is no fixed rule that can be applied to the abortion of acute inflammation of the mastoid; the success of the treatment is dependent upon the general vitality of the individual and opsonic index of the isolated organism producing the disease of the individual. If the opsonic index is low, the disease will probably resist any abortive treatment, and if high and treatment is scientifically applied, the disease may be blocked in its destructive process. Rest in bed, free purgation, a diet of predigested beef or liquid peptonoids, and dry heat applied continuously to the mastoid, will, if it is possible, establish a local healthy metabolism more speedily than any other method. If, after forty-eight to fifty-two hours, there is no remission of the swelling and temperature, operative measures are indicated. The danger of a mastoid operation, as an operation, *per se,* is much less than the uncertainty of the future of a mastoid suppuration at any stage of the disease.

The character of the infection varies, and may be mono-bacterial or poly-bacterial, and may spring from a suppurating ear or from a non-suppurating ear. Infection may spread to the meninges from a non-suppurating ear as well as from a non-suppurating frontal or ethmoid sinus. As long as there is an existing focus of infection near the brain, under favorable conditions, an extension to the brain can be expected. It is often very difficult to explain the avenue of infection in the many forms of meningitis; it is reasonable, however, to expect infection to be carried more rapidly where the vascular interspaces are the greatest and in the closest relationship, and it is therefore probably true that it is through the nose or ear that infection is most frequently carried to the brain.

The organisms most frequently found in brain disease of otitic origin are streptococcus pyogenes aureus, staphylococcus pyogenes aureus, tubercle bacillus, Eberth's typhoid bacillus, Klebs-Löffler bacillus, bacillus diplococcus intracellularis of meningitis, and the pneumococcus.

I desire to call attention to the danger of removal of a polypus from the ear in an old suppurating wound, on account of the not infrequent connection of such growths with the cranium, and also to the danger of applying escharotics or forcing strong fluids into the ear for the relief of suppuration. When there is a formation of polypi, there is usually a necrosis of bone, and if the polypi spring from the attic of the ear, there is always the possibility of an erosion exposing the dura. We should also remember in treating a suppurating ear that possibly a chronic brain abscess may be draining into the ear. Such conditions have been observed by Hoffman, Albers, Macewen and others.

Macewen observed a case in which the surgeon flushed the ear with a solution of nitrate of silver, forcing the fluid into the cranial cavity, producing death.

In the treatment of suppurating ears, free drainage and cleanliness without resorting to force, should be a ruling principle.

In a consideration of insanity from otitic origin it would be interesting to have the statistics from some of our great hospitals, especially our Central Hospital for the Insane. However, I know that in many cases of chronic suppuration of the ear, with slumbering mastoid inflammation, having constant or periodical headache, absorption of morbid products and a general lowering of the physical and mental tone sufficient to excite alarm of the ob-

serving parent or physician, these symptoms may progress, and if not relieved by an operation, may end in insanity or some suppurative brain disease.

The following case will portray such a condition and show what we may sometimes find in individuals with a suppurating ear, where symptoms are too frequently attributed to indigestion, eye strain or some imaginary disorder.

CASE I. Chronic discharge from the left ear for eight years; no odor to the slight discharge which was detected glazing the inner tympanic wall.

BLOOD EXAMINATION BY DR. W. T. DODDS.

Red cells	4,536,000
White cells	10,000
Polymorphonuclear variety	8,800
Mononuclear variety	600
Lymphocytes	400
Transitionals	200
Hemoglobin	393
Color index	102

Microscopical examination of pus from middle ear: Large cuboidal epithelial cells, many pus and mucous corpuscles; staphylococcus in abundance and a diplococcus intercellularis meningitidis, the latter being in the pus cells.

Urine: Two per cent. urea, an excess of chlorides, uric acid and urates.

The above examination, with subjective symptoms, showed necrosis in the flat bone and general absorption, with a disposition to cerebral complication. Meningitis serosa is but a short step from meningeal irritation due to middle ear suppuration. The serous meningitis of Quincke in complication with acute otitis media or accompanying or following a mastoidectomy, is an especially interesting condition, first because of the alarming symptoms, and second because of the favorable outcome, many times, of the disease. Serous meningitis of Quincke is suddenly, during the otherwise seemingly satisfactory course of the disease, ushered in with a high temperature, rapid pulse, delirium and symptoms of pressure in the posterior fossa. There may be present optic neuritis and strabismus.

I have already referred to the meningitis of Quincke, and shall, on account of the time at my disposal, refer only to two cerebral complications, meningitis and sinus thrombosis, for the reason that they are the most frequently observed and of more interest, leaving the other complications to some future paper.

Meningitis may take on so many variations that it is quite impossible to classify accurate differential symptoms, or prognosticate the condition. Not infrequently symptoms point to positive brain complications, only to show no lesion whatsoever at the post-mortem table, as shown by Whiteneck. (*Journal of Laryngology*, June, 1906).

Meningitis may imply pachymeningitis or leptomeningitis; however, the latter lesion is implied in a discussion of meningitis. Meningitis may be purulent or serous; on account of the varied degree of the latter lesion encountered originating in the ear, it is really of more prognostic interest than the cerebral or cerebellar abscess. The differentiation everyone admits to be frequently difficult.

Meningitis due to the pneumococcus runs a much more rapid course (five to six days) than that due to infection from the diplococcus of Weichselbaum or the tubercle bacilli, which may run a long course, varying from a week to two or three months. In favorable cases, however, the improvement usually begins after the first week.

Cerebrospinal meningitis is presumed to be due to the diplococcus intracellularis alone.

Meningitis may be due to single or double infection, which may be caused by the diplococcus of meningitis, the staphylococcus or streptococcus pyogenes aureus, the pneumococcus, typhoid bacillus, bacillus tuberculosis, gonococcus, as observed by Trow as a cause of mastoiditis (*Canadian Pract. and Review*, 1903), the Klebs-Löffler bacillus, the streptococcus of erysipelas, the grippe bacillus and unknown bacteria. The tubercle bacillus or the diplococcus intracellularis meningitidis of Weichselbaum may multiply and remain within a suppurating ear, causing a condition of slumbering mastoiditis, which for years produces a slight irritation of the meninges, only awaiting an attack of influenza, pneumonia, typhoid fever or some disease sufficient to lower the resisting power of the meninges to bring about this severe complication.

In one case observed by the author, one week after simple mastoidectomy following acute otitis media purulenta, there was delirium for two weeks, with a temperature varying from 100° to 105°. In this case no operative measures were resorted to and the patient made a perfect recovery. Cerebral symptoms of pressure were present, though not profound. There were present high temperature, delirium, ad a rapid pulse, though no optic neuritis. A condition of this character was evidently metastatic and due to the organism producing the mastoiditis, the streptococcus pyogenes aureus, or its toxins. The blood examination showed a high leucocytosis, with abundance of polymorphonuclear leucocytes. In this case a purulent discharge persisted from the mastoid wound for two months, completely disappearing with perfect healing of the wound.

According to Quincke, any opening made into the arachnoid space will be followed by a cure.

Ballance, in a discussion of a paper by Dench on treatment of intracranial complications of middle ear suppuration, read at the section of Laryngology and Otology of the A. M. A., June, 1906, said there is a rise of temperature, slowing of the pulse, vomiting, dizziness, stability of the pupils and some redness of the optic disk, and that the condition can be relieved at once by lumbar puncture. Dench (ibid) said: "I am inclined to believe that the best plan of treatment is to relieve the pressure by lumbar puncture, and, failing in this, to relieve the increased pressure by craniectomy, followed by an incision of the dura and of the cerebral substance." He also said he believed it better, provided the ventricular distension is not sufficient for free drainage after the brain substance has been penetrated for the distance of an inch, to simply incise the brain substance.

In addition to the symptoms enumerated by Ballance, the general symptoms of meningitis are headache, delirium, muscular twitching of the arms and legs, grinding of the teeth, involuntary discharge of the urine and the feces, contraction of the muscles of the neck, relaxation of the muscles of the abdomen, causing the classical, so-called boat-shaped abdomen, contraction of the pupils, injected conjunctiva, hyperesthesia of the muscles of the neck and calves of the legs, and sometimes general cutaneous hyperesthesia.

In very young children epileptiform convulsions and opisthotonos may be the first symptoms of the disease, with now and then a peculiar "hydrocephalic" cry. The temperature may vary from 100° to 106°, and the pulse from fifty to one hundred twenty per minute, with a tendency to drop to the lower figure.

Kernig's sign is usually present, *i. e.*, an inability of the patient while lying on his back to flex the thigh without at the same time flexing the leg, and also inability to completely extend the leg.

Trousseau's sign may also be present as shown by the contraction of the muscles of the upper extremities following pressure upon the tendon of the biceps.

According to Korner, motor aphasia is more frequent in meningitis, and is due to a severe exudation into the fissure of Sylvius.

In enumerating the eye symptoms observed in meningitis, I can do no better than report the compilation on the subject of Robert B. Preble, *Progressive Medicine*, Vol. VIII, No. 1.

"Heine reports a study of the eye disturbance in epidemic meningitis, based upon a study of one hundred cases. Disturbance may appear in the motor apparatus, the sensory tracts or the nutrient portion of the eye. One should not include here the cases of conjunctivitis, keratitis and the like, which sometimes develop in the course of this, as in other severe infections, when the patients lie unconscious with half open eyes for a long time.

Hemorrhages into the retina are seen very much less often than simple intraocular optic neuritis. This is more often due to a descending neuritis from the basal meningitis. Sometimes there is a neuritis of the optic nerves behind the bulbs and without ophthalmoscopical findings, unless optic atrophy results. The frequency of secondary optic atrophy is not yet determined for want of sufficient statistics.

Metastatic ophthalmia is seen and is usually severe.

Involvement of the motor oculi nerves also occurs. They are almost always basilar in origin, more often unilateral than bilateral, and oftenest the abducens paralysis. Not rarely one sees a more or less complete paralysis of all the eye muscles. Ptosis is often strikingly absent. The milder cases often recover completely.

Of the one hundred cases examined by Heine, twenty showed eye symptoms which totaled thirty in number. There were nine cases of unilateral or bilateral optic neuritis or retinitis, thirteen with motor oculi paralysis and five with opthalmia."

Blood examination in meningitis shows a high leucocytosis, varying from 40,000 to 47,000 (Emerson); and, according to Preble, there is no material difference in the counts shown by the cases ending fatally and those which recovered.

Lumbar puncture in meningitis serosa or purulenta is a proper procedure for two reasons; first, a relief of the pressure in the sub-arachnoid space and ventricles, and, second, as a diagnostic measure. The fluid, as described by Schottmüller, may be perfectly clear in meningitis, ranging from that to a cloudy or purulent fluid. The cocci vary in number, the number being no relationship to the color of the cerebrospinal fluids. In brain abscess the cerebrospinal fluid is clear and free from cocci.

According to Lenhartz, the amount of fluid to be withdrawn should be from twenty-five to forty c.c. at each sitting, and should be performed daily. The question of early opening of the brain cavity for the evacuation of pus in this form of meningitis is recommended especially by Friedrich of Kiel. He recommends, if possible, craniectomy at the site of infection, combined with laminectomy, thus establishing drainage of the dural sac. (See Operative

Treatment of Purulent Meningitis, by Prof. C. Hinsberg, *Archives of Otology*, October, 1906).

It would be interesting and valuable to know the statistics of those insane from suppurative ear disease. Not infrequently acute and chronic insanity is noted following operation upon the mastoid. Family history probably plays a very important part in the etiology of insanity. In a patient tainted with insanity and suffering from a chronic suppuration of the ear or from the immediate mastoid operation, acute insanity may manifest itself at any time. In the case just reported, previous to the operation grave symptoms pointed to the possibility of insanity.

Sinus thrombosis may involve the lateral, sigmoid or jugular bulb. All three divisions may be involved at the same time, or the inflammation may confine itself to the one structure, beginning at the torcula and extending the entire length of the jugular vein of the affected side. Other sinuses may become involved secondarily from metastasis.

In diseases of the jugular vein and sinus thrombosis there may be present metastatic infiltration in the lung, liver, kidney and heart.

Early in the disease there is usually a general malaise and sometimes slight jaundice, followed in twenty-four to forty-eight hours by rigors, which increase in numbers and severity and are followed by profuse sweating. The temperature is very high, differing thus from meningitis, ranging from 100 to 106 degrees F. The pulse is exceedingly rapid, and as the infection increases becomes weak and thready. There is rapid emaciation and toward the fatal termination of the disease involuntary voidance of urine and feces. An abscess of the lung or liver accompanying the disease may rupture, causing the sudden death of the individual.

Early in the disease there is pain in the region of the thrombus upon pressure or percussion. Pain in the temple and forehead may be present. Though this symptom may be entirely absent, we not infrequently have tenderness upon pressure, and swelling of the tissue over the mastoid and muscles of the neck. The important symptoms differentiating sinus thrombosis are chills, followed by profuse sweating, and high temperature. The intellect is clear during the early stage of the disease and before profound pyemia is established. According to Voss, there is also present enlargement of the spleen and many symptoms that might suggest severe malarial infection. The disease usually terminates in death in from ten to twenty days. Blood examination shows a high percentage of polymorphonuclear leucocytes.

The lung complications may be the symptoms which first bring the physician into the case, and not infrequently the otologist does not see the case until the sinus is completely thrombosed and a localized or diffused suppuration has been established.

Leucocytic count shows a high degree of leucocytosis varying from 10,000 to 40,000. This condition might also be expected in acute abscess of the mastoid process; however, a high leucocytosis is indicative of greater extension of suppuration than in the mastoid alone. "The blood may show streptococcic or other infectious organisms."

A leucocytosis of 10,000 or more, following a few hours or days after operation and sustained for any length of time, is indicative, according to Emerson, of deeper complications.

The treatment of the disease varies somewhat according to the extent of the lesion. My observation is that sinus thrombosis is more often fatal when the necrosis has extended into the petrous portion of the temporal bone. With a deep necrosis in this region other complications are more likely to occur.

At present the question of most importance is, shall the jugular vein be ligated in all cases of sinus thrombosis?

Whiting (*Archives of Otology*, page 253, June, 1906), considers that the inability to re-establish the circulation from the bulb is a positive indication for resection of the jugular, whether the clot contained at the bulb has undergone purulent disintegration or not; also that the jugular should be resected in every instance, when the clot in the sinus has undergone purulent disintegration.

John D. Richards (*Archives of Otology*, June, 1906, page 378), says, that primary jugular ligation or resection is rarely indicated except in the presence of metastasis.

Kennon (*Archives of Otology*, June, 1906) says, should a thrombus be situated either primarily or secondarily in the bulb we should at once expose and resect the jugular vein.

Dench (*Journal A. M. A.*, October, 1906), says: "Sinus thrombosis, recognized early, will be almost certainly cured." Dench further says (ibid): "In a case where the general condition of the patient is good, jugular exsection should be performed at the first operation if full hemorrhage does not take place from the bulbar end of the sinus."

Before resorting to the complete exsection of the jugular vein it is well to consider first whether or not we have any metastatic complications, as pneumonia, abscess in the lung or septic endocarditis. With such complications, severe in character, there

can be no good derived from a primary resection of the jugular vein. Even in a consideration of primary jugular exsection there is the constant possibility of infection, embolic substance passing through the collateral circulation of the neck. In the present light I should prefer to explore the sigmoid sinus, and with the thorough establishment of circulation plug the wound; finding the bulbar region involved with a retarded flow of blood and the patient strong and with no symptoms of metastasis, especially in the lung, would recommend jugular resection, resecting the vein as completely as possible.

PLASTIC RADIOGRAPHY (RADIOGRAPHS IN RELIEF).*

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Plastic Roentgenography was originated by Alexander of Budapest about two years ago, since which time Morgan of England and Dieffenbach of New York have exhibited very beautiful work. The word plastic as employed in this sense is borrowed from sculpture and simply signifies the production of a finished radiographic print so that it appears in bas-relief, and it must be understood that it is not a new method of taking Roentgenograms but only a new means of reproduction. The modified technic is associated with extreme simplicity and the plastic prints may be made by anyone possessing the ability of an amateur photographer, providing he has the proper negative to begin with.

Technics.—The first step is to obtain a radiograph in the regular manner. It is essential that the negative be contrasty but not too dense. A glass positive is now procured in the following manner: Place the negative (film surface up) in a printing frame and while in the dark room place an (unexposed) slow plate (film surface down) in the same frame. Put the cover on the frame and protect the back and sides with black paper to prevent fogging, and expose to electric, gas or daylight. Develop, fix, wash and dry in the usual manner. Place the two plates back to back and while examining by transmitted light, obtain exact register or apposition of the two images. While holding the plates in this manner they should be firmly bound together with lantern slide paper or zinc plaster to prevent slipping. Place the two plates in a printing frame with the positive side up and print at an angle of from 30 to 60 degrees to the light.

The desired angle may be readily ascertained by holding the plates in various positions while examining by transmitted light. The density of the positive should be about the same as, or possibly a little less than that of the negative. Any printing paper may be used, but inasmuch as the light must pass through two fairly dense plates it is preferable to employ a speedy paper. I use the contrast grades of velox, cyco and argo papers with a glossy surface and expose to daylight (not sunlight) for from one-half to ten seconds. If preferred one can make another plate instead of the print, but as this will be a positive it is necessary to again reverse the image to obtain a negative. Plate No. 4 will then be the permanent printing negative. Lantern slides made from this plate will produce brilliant and very pleasing effects.

An explanation of the results produced by the plastic method.—In printing through the two plates at an angle, shading is obtained. One side of the image is illuminated while the other edge is darkened. This produces the relief effect. The phenomenon perhaps can be better understood by watching a sign artist paint letters on a flat surface. He first paints his background and letters in contrasty colors, he then makes them stand out by shading one side and illuminating the other. The method, therefore, is one of deception and one must not place too much reliance upon the appearance of perspective obtained in radiograms. The position of a foreign body or the relative position of bones cannot be accurately determined by this method any more than by an examination of the original negative. This fact I desire to make very plain. The process must not be confused with the stereoscopic method. In the latter instance two radiograms are made at different angles and by placing the two plates in a specially constructed stereoscope one views one plate with one eye and the other negative with the other eye. In this manner more is seen than it would be possible to show in a single negative, for one looks around the corners as it were. In the former case no more is brought out than exists in the original negative but it is shown in a more striking manner. It is, or course, very plain that the plastic prints contan more detail than is shown in the regular prints. Every radiographer knows how impossible it is to obtain a good print from an *x*-ray negative. This is because some parts of the negative has been overexposed while other portions have received a normal or an underexposure. Hence, some parts of the plate will be very

* Read at a meeting of The New York Red Cross Clinical Society, May 16, 1908.

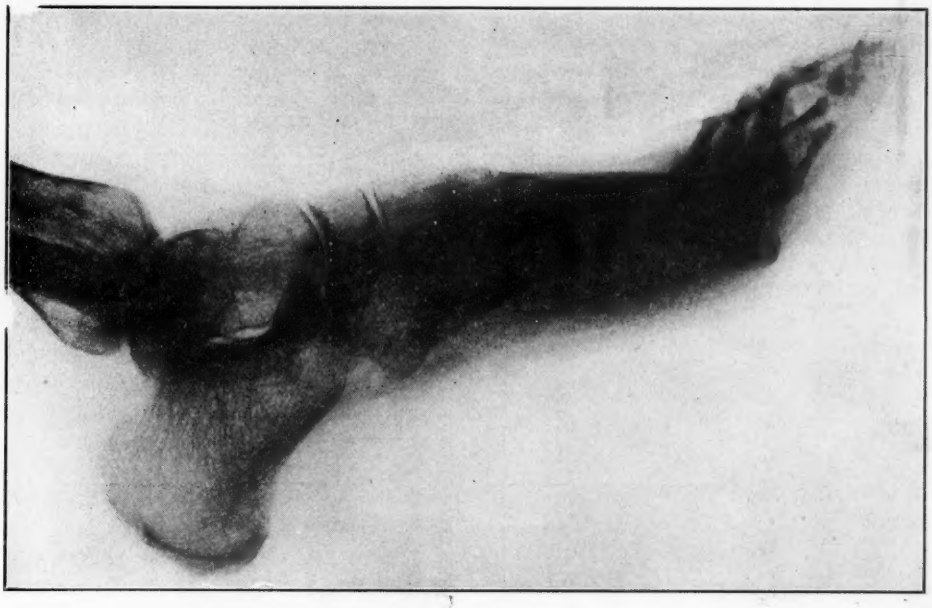

Figure 1. Print of foot made directly from negative.

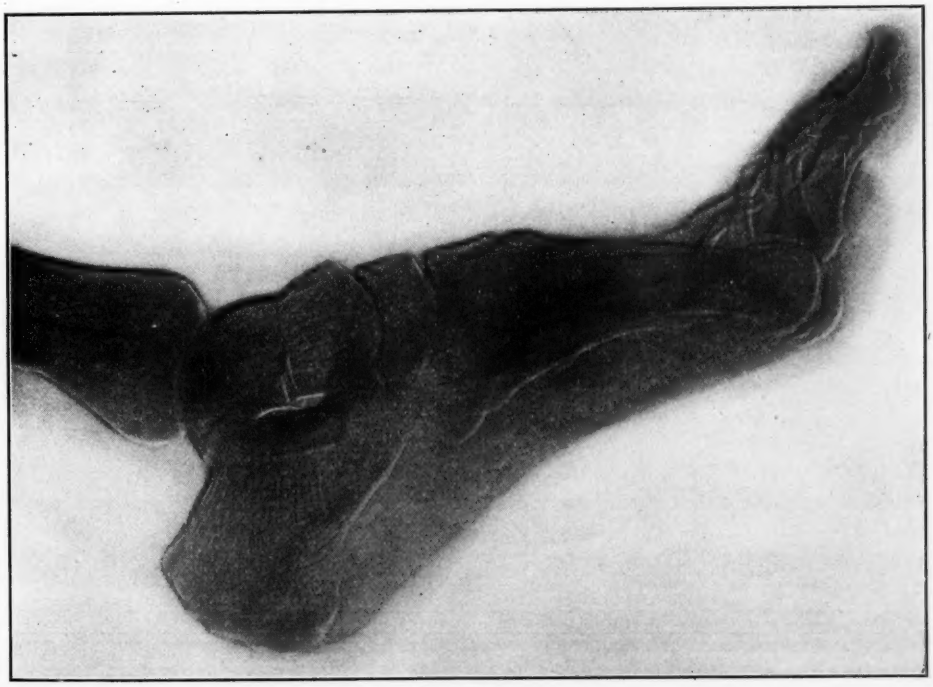

Figure 2. Plastic reproduction of Figure 1.

dense while other portions will be equally thin. In making plate No. 2 one not only reverses the image but the dense parts of the negative will be represented by thin spots in the positive, and vice versa. When the plates are placed together the positive tends to equalize the irregularities in density of the negative so that the light is enabled to pass more or less freely through all parts. But here again I must insist that no more can be demonstrated in the plastic print than can be seen in the glass negative by one who is experienced in the examination of *x*-ray negatives by transmitted light, in fact, I can even

Figure 3. A plastic print of a normal elbow.

go further and say that in some instances the delicate detail of a good negative of the heavy parts of the body may be obscured.

The value of the method.—The one great value of this procedure is as a means of reproduction. It is possible to show more detail in the plastic print than in a print made from the original negative. On account of the appearance of relief and the increased detail contained therein these prints reproduce well and hence are of considerable service as illustrations. They may also be of service in demonstrating detail to those who are unable to obtain satisfaction by an examination of the negative. As has already been mentioned the negative must be an exceptionally

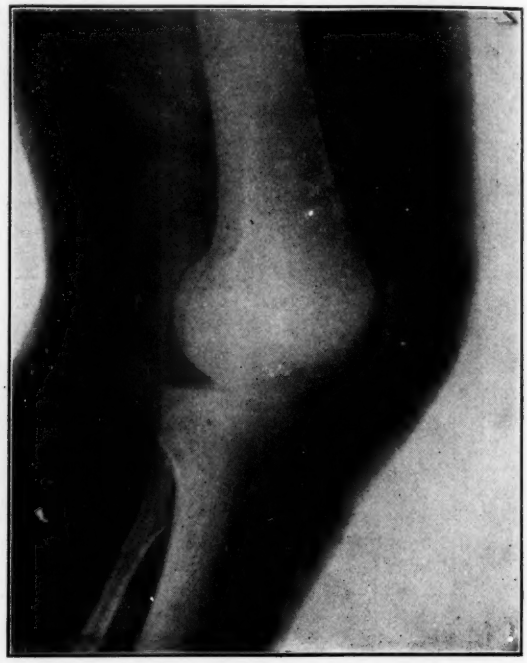

Figure 4. Plastic print of normal knee.

good one to produce a satisfactory plastic print and for this reason I have not found the method appli-

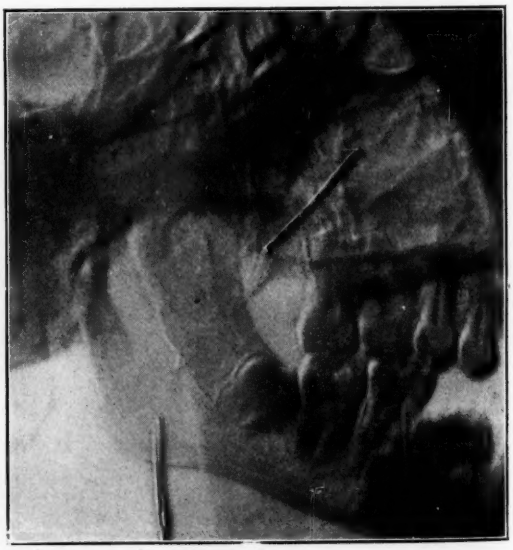

Figure 5. Plastic print made from a radiograph taken through a portion of the face. Note impacted molar.

cable to kidney and other heavy work excepting in those cases where I have been fortunate enough to

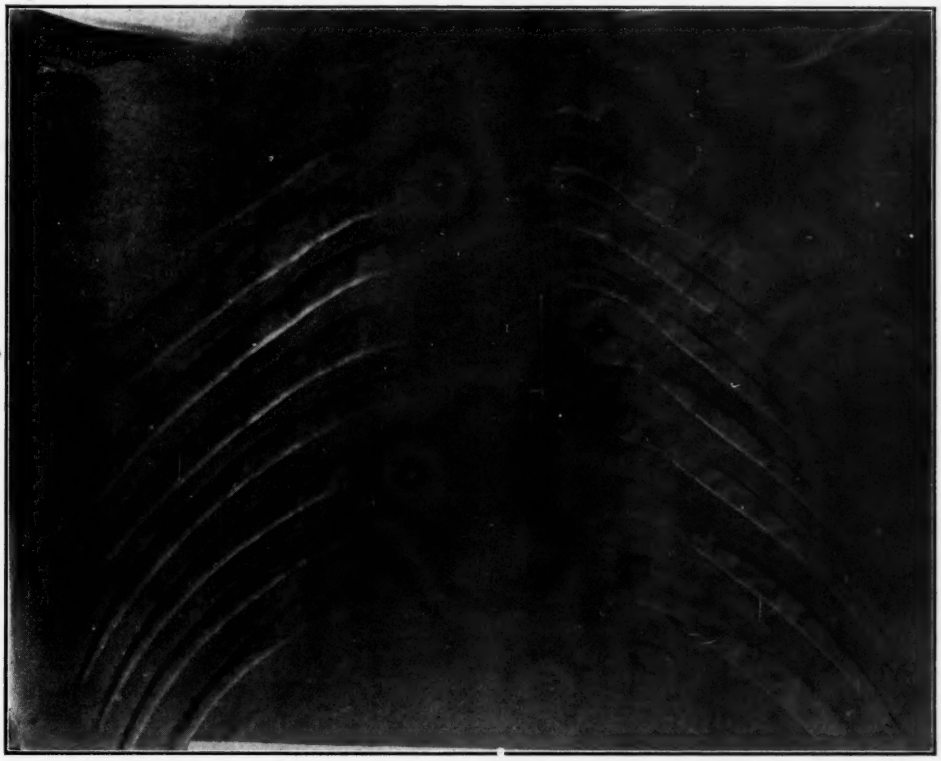

Figure 6. Plastic reproduction of radiogram of the thorax.

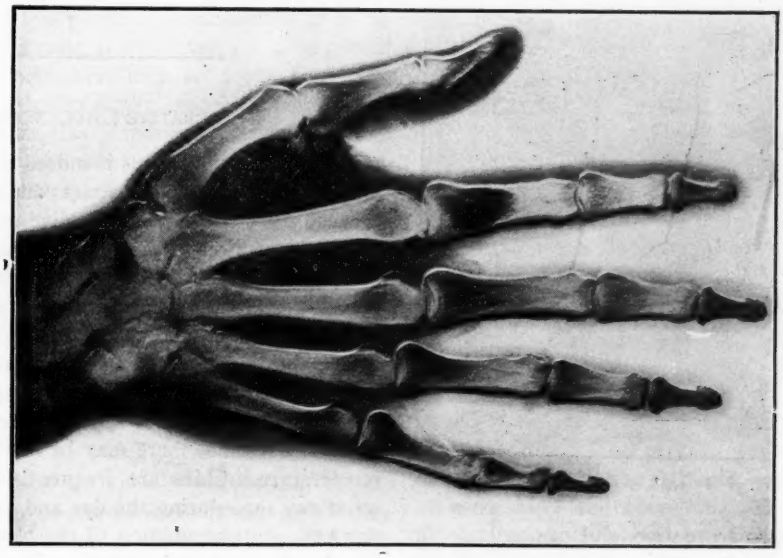

Figure 7. Plastic print of hand, showing cystic degeneration of the first phalanx of the index finger.

obtain a negative possessing the requisite amount of detail and contrast. From an artistic point of view the pictures are exceedingly beautiful and it is

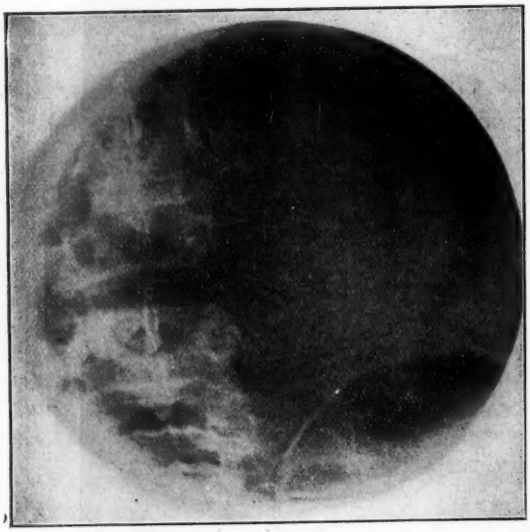

Figure 8. Plastic reproduction of radiograph through region of right kidney. The transverse process, psoas muscle and kidney may be seen.

very pleasing to see the image stand out in bold relief instead of the customary silhouette. Figure 1 is a print made directly from a radiographic negative of a normal foot. Figure 2 is a plastic repro-

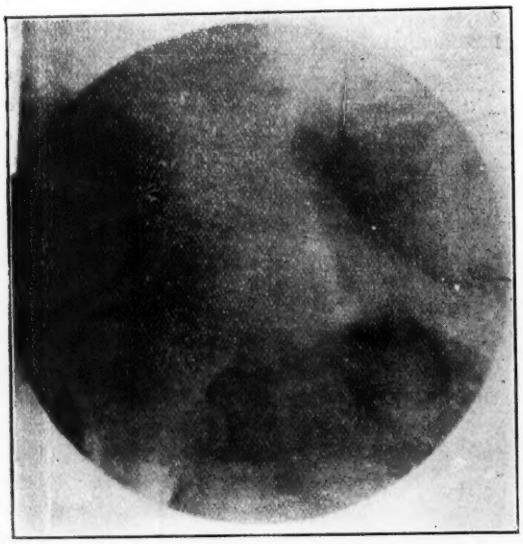

Figure 9. Plastic print of hip joint, showing fracture of ischium.

duction of the same negative, and demonstrates in a striking manner the difference between a plastic and a regular print. In the former not only does the image stand out in bold relief and the cavities appear deep but more anatomy is actually shown and the structural detail appears to better advantage. This print really looks more like a picture of a dissection or of a plaster cast than a radiograph. Figure 3 is a plastic print of a normal elbow, Two coins and two foreign bones are to be seen. One of each was placed on the plate while the others were placed on top of the forearm. It is practically impossible for the novice to determine which coin is on top and which is under the arm. A close inspection will demonstrate that the one near the elbow is larger and not so sharply defined as the other which, of course, indicates its position. The position of transparent bodies is more readily determined. One should have no difficulty in judging the location of the two small transverse bones. Figure 4 is a plastic reproduction of a radiograph of a normal knee. Figure 5 represents a plastic print from a radiograph of a portion of the face and shows an impacted molar. Figure 6, which is a plastic print of the thorax, shows depth and contour. A lateral curvature of the dorsal spine is well portrayed. The outlines of the scapulæ, the heart and pulmonary markings are also depicted. Figure 7 is a plastic print of a hand. Figure 8 is a plastic reproduction of a radiograph of the kidney. All the transverse processes, the psoas muscle and the kidney itself are easily demonstrated on the print. Figure 9 is a plastic print made from a radiograph of a hip joint. It shows a fracture of the body of the ischium and of the descending pubic ramus.

616 MADISON AVENUE.

SUPPURATIVE CHOLANGITIS.

Suppurative cholangitis is indeed a puzzle for the diagnostician if it is not accompanied by jaundice, because there may be no objective symptoms to direct the attention to the gall-bladder. In this case the physician seldom suspects the gall-bladder and makes a diagnosis of malaria. In cholangitis the temperature rises and falls frequently; the highest temperature is toward evening; the variations in temperature are of great irregularity in their occurrence and the periods of apyrexia are short and not distinct. At times there may be marked subnormal temperature. Chills are frequent, irregular, come on at any time during the day and are unlimited in number. An examination of the blood would clear up the diagnosis of malaria.—H. E. LOMAX, in *Albany Meical Annals.*

PROSTATIC HYPERTROPHY IN THE AGED.*

CHARLES E. BOWERS, M.D.,

WICHITA, KANSAS.

It is estimated that 34 per cent. of males, as they approach sixty years of age, are possessors of enlarged prostates, and that 50 per cent. of these are sufferers from urinary retention resulting from pressure upon, or constriction of the prostatic portion of the urethra.

Anatomically, the prostate gland is composed of two lateral lobes, united by a fibromuscular commissure. The stroma of the gland forms by a peripheral condensation what is known as the capsule. It is continuous with the commissure, and structurally, cannot be separated. The urethra pierces the prostate from base to apex. Thus it is easy to account for an obstruction to this portion of the urethra, when hypertrophic changes take place in the prostatic tissues. The prostatic sheath is derived from the pelvic fascia and covers the entire prostate except its vesical surface, and structurally is distinct from the capsule; hence, as a rule, it is easily separated. Thus, the enucleation of the gland in the capsule can be accomplished without difficulty. The prostate makes its appearance (microscopically), at the third month of embryonic life. The glandular elements develop at puberty, reach maturity at middle life, and retrograde to an atrophic state in old age, if a normal course be pursued.

The etiology of prostatic enlargement as it occurs in the aged male, is a question yet to be solved. Numerous theories have been set forth, from time to time, each, when critically examined, being found untenable. That this glandular enlargement is an etiologic factor in senile urinary obstruction, is accepted without controversy. The relief prostatectomy affords establishes this fact beyond question. What is known as a third lobe is either an accessory lobe, or a projection of one of the lateral lobes —it is not present as a rule, and is consequently abnormal.

The prostate can be considered a paired organ in as full a sense as the testicle, ovary, kidney and mammary gland. Each lateral lobe is provided with distinct ducts, which have outlets into the urethra anterior to the ejaculatory duct.

The function of the prostate is not an entirely settled question: That it exerts an influence upon the sexual function is held by all; and it is further held by some, that its acid secretion as it comes in contact with the alkaline testicular secretion, neutralizes it, and thereby occasions an increased activity of the spermatozoa.

We have thus briefly reviewed the fundamental principles which underlie the study of the different pathologic types, and the application of a rational therapeusis. Senile prostatic hypertrophy may be classified pathologically, into four types, each type representing the predominating element present, although there are pathologic changes in all the component elements of the gland involved.

1st. Circumscribed myomatous.
2nd. Diffused myomatous.
3rd. Circumscribed adenomatous.
4th. Diffused adenomatous.

We have operated upon twenty-six cases by the transvesical method:

Circumscribed myomatous	16
Diffused myomatous	7
Circumscribed adenomatous	2
Diffused adenomatous	1

Partial prostatectomy was done in both circumscribed myomata and circumscribed adenomata. Total prostatectomy was done in both diffused myomata and adenomata. The average operative time of total prostatectomy was fifteen minutes, average operative time of partial prostatectomy twenty-three minutes. The average age of operated cases, seventy-one years; the youngest fifty-four years; the oldest, eighty-six years, who made an early recovery, urine passing by urethram on the eleventh day, and the wound was dry on the twenty-third day after total prostatectomy. A cystotomy and a total enucleation of the prostate in the capsule can be accomplished in five to ten minutes.

CASE IV. At the age of eighty-three was operated by the "two stage" method, first, a cystostomy and later partial bilateral prostatectomy, which was followed by an early recovery.

CASE IX. Had a partial or bilateral prostatectomy; however, one year after operation was obliged to return to the use of the catheter. This case no doubt should have had a total enucleation. We now recognize the fact that there are cases that belong to the diffused type, which are diagnosed at the time of the operation as circumscribed hypertrophies. This, perhaps was true in this case; the pathologic process no doubt, went on in the commissure after the operation. This case has impressed us with the weight of the statement made by Dr. Freyer. That "total enucleation is required in all cases." We feel that it will be our mode of

* Read before the Medical Association of the Southwest, October 10, 1907.

action in a much larger per cent. of our future work than it has been in the past, if, indeed, it will not be the rule.

CASE XIV. Had a partial enucleation of prostate, and died on the same day. Post-mortem findings revealed double pyelonephritis. The physical condition of the patient at the time of operation was reduced to the extreme, he could not speak above a whisper, and he was exhausted in heart, body and mind. The operation was done over our protest, but at the urgent request of the attending physician, who was a son-in-law of the patient. We consider this class of cases beyond surgical aid.

CASE XXIII is of interest from a diagnostic viewpoint. A man of sixty-eight, German nativity, weight two hundred pounds, gave a history of suffering from urinary retention during the preceding five years. Retention at times complete, requiring catheterization for relief. During the month prior to entering the hospital, he was ill and had to depend upon the use of the catheter entirely to empty the bladder.

Clinical History after entering the hospital.—Morning temperature, 102° to 103°. Evening temperature, 104° to 105°. Pulse, 74 to 88. Abdomen distended and tympanitic. Muttering delirium in sleep. Urine contained some pus cells and few hyalin casts and traces of albumen. Diazo and Widal reactions, negative. Rectal examination revealed a symmetrically enlarged prostate. Dr. Jäger, internist, diagnosed prostatic enlargement complicated with typhoid fever.

Four days after admittance to the hospital it became impossible to introduce a catheter. The patient was suffering so extremely from retention that it was decided to remove the prostate. Total enucleation was done in eight minutes under general anesthesia. The drainage tube was removed on the fourth day, at which time the urine began to pass by urethra. About the twelfth day after the operation the typhoid state subsided, and he had an uneventful recovery.

The remaining twenty-three cases made uneventful recoveries, and none was followed by any of the sequelae common to the perineal operation.

Our operative technic has been the same as described by Dr. Freyer, of England, with three exceptions: First, the operator's position is on the left side of the patient instead of on the right; the reason for this is, that the dissecting skill of the right index finger serves us better than that of the left; second, the patient is not placed in the Trendelenburg posture until after the bladder is opened, and its contents have escaped; and third, the incision in the abdominal skin and fascia is extended about two inches higher than that described by Dr. Freyer. This greatly facilitates the rapid enucleation and gives sufficient room for thorough inspection of the interior of the bladder, and also shortens the operative time, which is so important in these aged and debilitated patients.

Post-operative treatment consists in tonics, nutritious diet, daily vesical lavage through drainage tube and urethra, drainage tube removed on the fourth day, and the patient allowed then to leave his bed and be up and about his room.

Prostatectomy has now become a recognized surgical procedure, for relief of urinary vesical obstruction, due to prostatic hypertrophy; however, there is a difference of opinion as to the route of choice, perineal or suprapubic. Some prefer the perineal route in all cases, and others the suprapubic in all cases, while a few claim to be governed by the conditions found present in each case.

Dr. John B. Deaver, in a discussion of this question, this summer, stated that in his clinic, the suprapubic route was selected in all cases, except when it was possible per rectum to pass the finger above the prostate and retract the gland down against the perineum.

Dr. Howard Lilienthal's reply to my personal inquiry as to the approximate numer of prostatectomies done, the mortality, results, route chosen, and reasons here given, was the following:

766 Madison Avenue,
New York City, July 24, 1907.

Dr. C. E. Bowers, Wichita, Kansas,

Dear Doctor:—

My cases of suprapubic transvesical prostatectomies for senile hypertrophy number about sixty. There were three deaths. One was from preexisting uremia, the patient having been operated upon in one stage instead of two; the two-stage method, not then elaborated, would very probably have saved him. One from apoplexy, and one from coronary arterial disease, also after a one-stage operation. The two-stage operation would surely have given this man, also, a better chance.

Suprapubic operation is preferred because, in my hands, it has proven itself safe, and can easily be divided into two stages; separated by two to ten days and minimizing the shock. Also, it is the only method which permits, in Trendelenburg's posture, a perfect view of the interior of the bladder, and a thorough understanding of the mechanics of each case of retention. Sexual power (potentia coeundi), often lost after perineal operations, is rarely impaired after suprapubic section and prostatectomy. Technic easy, little or no danger of injury to the rectum. Speed operating above all thing.

Once more, SAFETY, especially when the operation is done in two stages.

Very truly yours,
HOWARD LILIENTHAL.

There are two important questions awaiting solution. 1. Is it better in all cases to do a total, instead of a partial prostatectomy? 2. What will be the ultimate results in those cases where total prostatectomy has been done? In those cases where the prostatic urethra has been removed, will stricture follow? Time and post-operative data will be required to determine the truth.

Our cases of total enucleation have done better than those of partial enucleation. Recovery was more rapid, urine passed by urethra sooner, and the wound was dry earlier after operation.

The possibility of stricture following total enucleation has prevented us from adopting this method in all cases. In fact, we did only the total enucleation in the diffused type of hypertrophy. Freyer, who has earned a name in this work, recommends total enucleation in all types. He does not mention stricture following his operations, nor any of his cases having to be re-operated.

As time goes on and additional operative work is being reported, it is to be noted that in three to five years after partial, or incomplete enucleation urinary obstruction recurs in a large per cent. of cases.

CONCLUSIONS.

1. An early operation is to be recommended before an ascending infection has occurred.

2. When complications have arisen, and the patient is uremic and highly septic, it is wise to adopt the two-stage operation. In this way the second operation can be deferred until the patient has improved physically and is relieved of the septic state.

3. Catheter life is a precarious one. Continued catheterization is responsible for the loss of many lives ultimately, and should be condemned.

4. Total and partial prostatectomy in the absence of kidney or other complication will have a very low mortality, if any. No class of surgical work has given better results, and a lower mortality in our hands.

STRICTURE OF THE URETHRA.

No urethral stricture should be cut until dilatation has been attempted.

Few strictures need to be cut and urethrotomy should be resorted to only when the stricture is undilatable or where an emergency demands immediate operation for drainage.—LUKE BEGG in *The Post-Graduate.*

OPERATIVE INDICATIONS IN DISLOCATION OF THE HUMERUS WITH FRACTURE.

CARLETON P. FLINT, M.D.,

Assistant Attending Surgeon to Roosevelt Hospital; Instructor in Surgery in the College of Physicians and Surgeons, Columbia University,

NEW YORK CITY.

(Concluded from the June number.)

Anterior Dislocation with Fracture of the Tuberosities—Greater Tuberosity.—A fracture of the greater tuberosity is found with a dislocation about as frequently as is a fracture of the surgical neck, or of the head and anatomical neck. The fragment corresponds to the entire tuberosity usually with a piece of shaft or to the portion of the tuberosity corresponding to the two anterior facets, supraspinatus and infraspinatus, rarely the anterior facet alone. This fragment may or may not be attached to the shaft by periosteum. The relation to the glenoid depends upon the variety of anterior dislocation and upon the preservation of attachment to the shaft. If the fragment is separated entirely it is drawn upwards and backwards; if still attached it may stand off slightly from the shaft, for instance, in ordinary subcoracoid dislocations or be pulled down tightly upon the glenoid as in infraclavicular dislocation; or the axillary variety. Even if the dislocation is reducible the fracture of the tuberosity should be operated upon immediately. Where there is displacement, an irreducible dislocation is an operative indication for evident reasons.

In old dislocations combined with fracture of the greater tuberosity, we are confronted with a serious condition. The combined conditions result in a useless painful shoulder, and unfortunately all of the case records are illustrations of this type. Either the nature of the injury was overlooked at the start or if not this, the favorable time for surgical interference was allowed to go by. The fact that so many fracture dislocations of the shoulder coming to operation show breaks of the greater tuberosity is, in my opinion, not evidence that the break of the tuberosity forms an obstruction to reduction of the dislocation, but rather that a break of the tuberosity with the interference of the muscle support favors a recurrence of the dislocation.

When the tuberosity is completely detached and comminuted the dislocation should be reduced by whatsoever operative measure applies, and the individual fragments of the tuberosity, some of which may be within the glenoid cavity, should be re-

moved. Up to the present time it has been almost universal custom to remove the tuberosity detached *in toto*. When the tuberosity is still adherent to the shaft the callus mass forms a great obstruction to reduction of the dislocation, and even if reduction is possible greatly interferes with the function of the shoulder. There are three possibilities of treatment to enable reduction.

1. A wedge-shaped excision of the callus mass.
2. Resection of the humeral head, and
3. Excision of the greater tuberosity.

The method of election is to resect a wedge-shaped piece of the tuberosity callus. This has been done successfully by Bickham-Souchon. Should this procedure fail to allow reduction, one is forced to decide between excision of the tuberosity *in toto*, and resection of the head of the humerus. In my opinion resection of the head is to be preferred for the following reasons: The probability of limitation of motion between scapula and humerus is greater in cases of resection for dislocation without fracture than in cases of reduction by open method without resection. Removal of the greater tuberosity has proven to result in inability to supinate and in diminished power of abduction because of loss of the effect of the muscles attached. If then, after wedge-shaped removal of callus in the region of the greater tuberosity, the head cannot be reduced and the remainder is removed to allow reduction, there is the permanent loss of these motions to be deducted from the advantage gained by preserving the head.

If, on the other hand, after wedge-shaped removal of callus from the greater tuberosity, the head is resected, we have to add the advantage of having preserved abduction and supination to offset the risk of limitation between scapula and humerus, associated with resection. There is then, as shown by case records, little to choose between these two methods from this standpoint. It will be found, however, that in the event of reduction not being accomplished after a wedge-shaped removal of callus from the tuberosity, the obstruction will not be so much on the part of the practically detached tuberosity, but because of other conditions referable to capsular ligaments, adhesions and muscles which, provided they are insurmountable, demand resection of the head. It is, therefore, preferable to resect the head primarily and leave the muscular structures intact rather than excise the tuberosity primarily, destroy supination and abduction, and finally because of still persisting obstruction be forced to resect the head besides.

Anterior dislocation with fracture of the lesser tuberosity is an extremely rare occurrence. Very few cases have been reported and only one has come to operation. Von Bergman, when operating for irreducible anterior dislocation, found the lesser tuberosity separated and sutured the capsule to the biceps tendon—with satisfactory result.

If it be found that the lesser tuberosity is separated in connection with an irreducible dislocation, it would be well to plan the operation in such a way as to expose the seat of fracture.

There are numerous cases on record which tend to prove that deformities about the glenoid, head of humerus or tuberosities, favor the occurrence of relapsing dislocation, and it has been particularly emphasized that any weakening of the anterior inferior portion of the capsule favors recurrent dislocation. It has been recommended to excise these fragments of the lesser tuberosity, which may or may not be attached to their normal position by a fibrous band. It appears to me that in fresh cases every attempt should be made to restore the insertion of the subscapularis tendon to its normal place, because of the importance of this muscle not only for motion of the arm but because of the strength afforded the capsule of the shoulder joint. In old cases the method of lengthening the tendon of the subscapularis as done by Deutschländer would seem to be preferable to excision of the fragment, but will be impossible in most instances because of the danger incidental to the dislocation itself. If there seems no probability that even a fibrous connection with the shaft of the humerus can be obtained, then excision of the fragment can be resorted to as a last resort. Not that this fragment as such, if left, would cause any symptoms, but because it is abnormally placed and might possibly cause symptoms. It is, of course, understood that the primary operation is because of the irreducible dislocation, the lesser tuberosity being of secondary importance.

Anterior dislocation with separation of the epiphysis of the humerus is another extremely rare combination. The only operative record at hand is the case report of Bull's where the head was displaced into the axilla. The fresh cases where the dislocation proves irreducible should be operated upon immediately and the head restored to its normal position. In old cases the indication is equally plain, it being only necessary to emphasize that excision of the head should form a last resort.

Anterior Dislocation with One Break of Scapula.—The case records show that the break in the scapula may be of the glenoid, the anatomical neck, the surgical neck, the acromion or coracoid. Of

these only marginal breaks of the glenoid and one break of the acromion have been dealt with on operation because of the irreducible dislocation of the shoulders. In both glenoid cases (Kocher, Perthes) the fragment constituted a foreign body in the joint and was removed. If the condition should be met with in a recent case and the fragment be still attached, it would be better to let it remain, provided the position of the fragment were anywhere near normal. The anterior inferior portion of the glenoid is effected, which defect favors recurrent dislocation and in Perthes's case even received the head of the humerus. In old cases, unless this fragment be an unsurmountable obstruction to reduction, no removal is indicated. In the case of fracture of the acromion, the fragment was excised with good result. No operative records of irreducible dislocation with fracture of the anatomical neck or surgical neck, has come to my notice, although these fractures have been reported in connection with luxation of the head of the humerus. In the event of either the carocoid or acromion being broken in connection with an irreducible anterior dislocation it would be well to make every effort to save the fragment. The acromion, because of the clavicular relation, the coracoid because of the muscular insertions. Delanginière removed the acromion fragment, and Kocher the coracoid—both in old cases, however.

Posterior Dislocation with One Break of the humerus.—Very few such cases are reported and of these only dislocations with fracture of the head, or tuberosities, have come to operation. The indications are the same as in the case of anterior dislocation.

Anterior Dislocation with Several Breaks.—When both tuberosities are broken, the chief aim should be to save the greater tuberosity after reducing the dislocation. This is because of the fact that the loss of the muscles attached to the greater tuberosity is productive of greater interference with function than loss of the subscapularis alone.

The condition should be regarded as a dislocation with fracture of the greater tuberosity and the indications accepted as applying to this break.

When the greater tuberosity and the anatomical neck have to be dealt with, in an irreducible dislocation, the problem is the same as discussed in connection with fracture of the greater tuberosity, regarding the relative value of the head and greater tuberosity. The head and anatomical neck breaks must be dealt with in fresh cases, as indicated in the paragraph treating of these breaks and irreducible anterior dislocation. Provided the conditions of circulation are such as to enable preservation of the head fragment, then this piece as well as the tuberosity may be saved. In old cases, however, unless the head fragment has attached a very extensive piece of shaft, including the lesser tuberosity (split fracture—Jones), it will be well to resect the head and preserve the greater tuberosity. The reason for this decision is that in an old case of this sort, the conditions secondary to the initial trauma have produced such obstacles to replacement that the necessary interference for the purpose of producing normal relations is so great as to completely destroy the chances of obtaining the object of the operation, that is, increased function. Resection of the head and restoration of the shaft to the normal plane, combined with the treatment of the tuberosity as conditions indicate (see above), holds out the best chance of improvement. Where the greater tuberosity and the surgical neck are broken in connection with an anterior dislocation, the luxation in a fresh case is of primary importance. Once the head has been returned to its normal position, the break of the surgical neck must receive attention and last the separation of the greater tuberosity. The surgical neck condition takes precedence because of the greater influence upon function.

In an old case with the break high up and union at the seat of fracture of the surgical neck, the immediate indication is to reduce the dislocation without resection of the head if possible. The condition of the tuberosity is better attended to at a later date for the reason that any operative interference here necessitates immobilization for some time which, combined with the unavoidable soft part disturbance, tends to diminish the chance of obtaining motion at the shoulder particularly if the head has been resected.

When the break of the surgical neck is well down the shaft and there is angular deformity, the indication is to correct this deformity first, then reduce the shoulder, and if conditions demand at some late date, attend to the tuberosity break after all that can be gained in the shoulder has been accomplished. The tuberosity break can be treated as such later.

Should the problem presented consist of an anterior irreducible dislocation, combined with a break both of the anatomical and surgical neck, the operative question centers upon the treatment of the head fragment in a fresh case; if the nutritive conditions permit, the head fragment may be fastened to the tuberosity fragment and after replacement the condition treated as a break of the surgical neck. This is more likely to be possible when the break of

the surgical neck is low down; when higher up it will be possible only to save the tuberosity fragment by fastening to the shaft and resect the head.

Old cases of anterior dislocation with fracture of the anatomical and surgical neck would better be treated by resection of the head and replacement provided the surgical neck break is high. The only variety where it would seem feasible to make an attempt to save the head fragment is when a break low down on the surgical neck is associated with a split fracture (Jones). Whether an attempt is to be made to save the head fragment or not, any angular deformity at the seat of the surgical neck break should be corrected before operating for reduction of the dislocation.

The treatment of an anatomical neck break combined with fracture of the shaft and anterior dislocation, whether old or recent, differs in no way from the treatment of anterior dislocation with fracture of the anatomical neck of the surgical neck low down.

When the irreducible dislocation is combined with a break of the surgical neck and shaft the operative indications are the same as in the similar condition without the extra shaft break. The latter is simply an additional incumbrance, but does not effect the operative indications at the shoulder except in an old case, with marked angular union. This must be corrected before an attempt is made to reduce the shoulder-dislocation exactly as in the instance of angular deformity at the seat of a surgical neck break low down.

Anterior dislocations are occasionally associated with breaks of both humerus and scapula; cases have been reported of greater tuberosity and coracoid, or glenoid, or with surgical neck of humerus, and anatomical neck of scapula. The operative indications can be derived from what has been read bearing on each individual variety.

107 W. 55TH STREET.

OSTEOCLASIS VS. OSTEOTOMY.

To sum up the advantages of osteoclasis versus osteotomy: First, elimination of possible infection dangers from open incision method; second, rapidity of the operation; third, pain is not complained of once in twenty cases and is never severe; fourth, rapid union on account of slight periosteal disturbance; fifth, increase of stature after bow-legs and anterior-bent tibia correction. This latter consideration is not mentioned anywhere in all my authorities on orthopedic surgery, and seems to me well deserving of favorable mention.—FRANK B. LUCAS in the *Illinois Medical Journal.*

REPORT OF TWO CASES OF RECURRENT DISLOCATION OF THE SHOULDER, SUCCESSFULLY OPERATED UPON; WITH DESCRIPTION OF THE TECHNIC.*

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The frequent occurrence of dislocation of the shoulder is clearly shown by the St. Thomas Hospital Records. In a series of 812 dislocations 353 were of the humerus—a ratio of 43.5 per cent., and when we recognize that a dislocation at this joint is liable to recur, we realize that we have a distinct surgical factor to contend with.

That the luxation is of common occurrence is not to be wondered at when we consider the anatomical structure of the joint. The head of the humerus lies in a shallow glenoid cavity and the capsule is thin and flexible as compared with that of the other articulations. The foregoing characteristics of the joint are responsible for the frequent occurrence of this dislocation. The capsule is either torn outright or is put to such a stretch that the connective tissue fibers are torn, which amounts to a laceration. Scar tissue makes repair in either case and we have a lax, flaccid capsule. Dislocation is thus allowed without further stretching or laceration of the capsule and the condition finally becomes so habitual and frequent as to totally incapacitate the patient and prevent him from following his usual occupation. In addition, the following possible causes should be mentioned; partial fracture of the head of the humerus, pressure fracture of the glenoid cavity; tearing away of the muscular insertions; rupture of the tendons; abnormalities in the shape of the head of the humerus.

The non-operative treatment of recurrent dislocation of the shoulder has been very unsatisfactory. The term habitual or recurrent dislocation is intended to refer only to those cases where the dislocation occurs from causes too slight to displace the normal joint. Many unwieldy braces have been devised, whose value, slight at best, is in direct relation to the limited movement of the arm they allow. Long continued use of apparatus which

* Read before the annual meeting of the Sullivan County Medical Society, May 13, 1908.

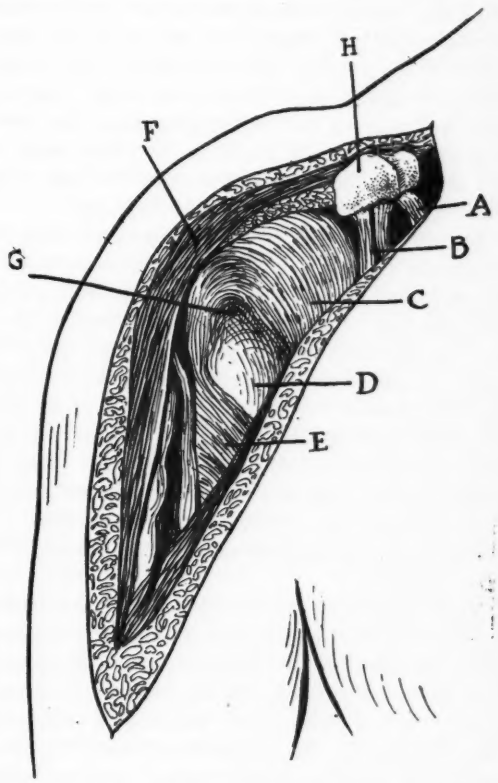
confines the arm to the side should be condemned. It weakens the muscles by causing their disuse. Treatment by massage and exercise is best on the advisability of improving the circulation and nutrition of the shoulder and strengthening the atrophied muscles. Examples of such exercises would be abduction of the affected arm to contract the deltoid, backward movements from the shoulder, forcible extension of the arm, for the triceps, etc. Prolonged fixation is called for where a second dislocation has occurred from slight cause. As much weight as possible should be removed from the joint by the fixation dressing.

Astringent injections have been tried, but are mentioned only to be condemned. Allbutt has mentioned ankylosis by arthrodesis, but excellent results from capsular operations with a practically normal joint have been numerous enough to condemn these procedures. Resection of the head of the humerus is out of proportion to the condition and not necessary. Suture of the capsule with infolding has been recommended. Also MacKinnon has reported a case of open arthrotomy with overlapping of the edges of the capsule, with a good result. Burrell & Lovett (*American Med. Jour. Sciences,* August, 1907), reported an operation which I have elected with some modifications in the two cases I am to report.

CASE I. E. W. C., male, 21 years old, was referred to me by Dr. A. A. Crane, Waterbury, Conn. The patient came wearing a complicated brace over his left shoulder. He gave the following history: Has been an epileptic since childhood; attacks for the past few years have been occurring at greater intervals; has had only two in the past year. In January, 1907, while chopping wood, the left shoulder was dislocated by swinging the axe over his head with great force. The patient went to Dr. Crane immediately; ether was given and the shoulder replaced. The arm was kept in a sling for two weeks. Three months later, while playing basketball, the patient fell on his shoulder, causing a second dislocation which was reduced by a companion. Another dislocation occurred in two weeks, while swinging on parallel bars. One month later, while swimming, a fourth dislocation occurred. In September, 1907, while playing basketball, the shoulder was again dislocated by a very slight injury. A few weeks later, while working in a shop, in attempting to adjust a belt, his shoulder was again dislocated. A short time after this, while wrestling with a companion, the shoulder was again dislocated. On November 28th, 1907, the arm was dislocated while dancing, from no apparent trauma. Two days later the patient came to me, and operation was advised. The following night the patient was awakened by his shoulder dislocating in his sleep.

Examination revealed the muscles about the left shoulder to be considerably atrophied. The atrophy of the deltoid was especially marked, but there was no restriction of movement. No rent in the capsule could be detected. Marked laxity of the joint was apparent.

CASE II. W. J., male, aged 18 years, consulted the writer January 5th, 1908, and gave the following history. Three years ago (winter of 1905), while playing basketball, the right shoulder was dislocated. It was reduced by a physician and carried in a sling for ten days. Six months later the shoulder was dislocated by throwing a baseball. Three or four months later, while playing handball, the shoulder was again dislocated by attempting to meet the ball with the hand. While playing the same game a few weeks later, his arm was again dislocated. No further trouble until December, 1907, when another dislocation followed an attempt to turn a machine handle while the hand was extended above the head.



A, Pectoralis minor; B, Coraco-brachialis; C, Subscapularis muscle, partially covering the capsule; D, Humerus; E, Pectoralis major and latissimus dorsi muscles; F, Deltoid; G, Lower part of capsule. H, Coracoid process.

With the exception of the first time, the patient was always able to reduce the dislocation without trouble, but this time all attempts by companions failed, and he was obliged to be taken to a physician, who accomplished reduction after some difficulty and under an anesthetic.

A physical examination revealed a state of affairs similar to those found in the first case. The muscles were considerably atrophied, there was slight joint sensitiveness, but no restriction of motion. The capsule was apparently more lax than normal, but no rent could be detected.

Both cases were operated by the following technic:

An incision was made over the coracoid process and extended downward, following the line of the cephalic vein to the insertion of the deltoid muscle. The cephalic vein was drawn inward and the intermuscular septum between the deltoid and the pectoralis major was recognized and those two muscles were separated by blunt dissection. The coracobrachialis and the short head of the biceps came into view in the upper end of the wound and the insertion of the pectoralis major in the lower angle of the wound. The head and neck of the bone were then exposed by thorough blunt dissection.

In order to do this it was necessary to carry the incision in its whole depth up to the coraco-brachialis and short head of the biceps origins on the coracoid process. The anterior and interior aspect of the capsule were then exposed by developing the pectoralis major and latissimus dorsi and by retracting them inward; by dividing a portion of the subscapularis muscle and retracting it upwards. The arm was then abducted about 25° to 30°. This allowed the best exposure as well as the best relaxation of the capsule. The loose part of the front and inferior aspect of the capsule was then grasped with three hemostats.

Three sutures of No. 1 catgut were inserted with a curved needle beneath this fold of capsule, from which an elliptical piece one inch long and one-half inch wide was excised between the sutures already placed. When these sutures were tied it was found that the capsule was distinctly shorter. A broad retractor, without sharp points, to retract the coracio-brachialis muscle and the vessels inward is of great help. When the arm was brought to the side all the muscles fell into place and it was necessary to suture the superficial fascia and the skin only. The arm was held to the side with a plaster shoulder cap. A tight sling was applied to the elbow and forearm to remove the weight of the arm from the deep sutures. The arm was retained in this way for two weeks, when the plaster was removed. The sling was allowed to remain one week longer, with passive exercises twice a day. At the end of three weeks all apparatus was removed and the patients were encouraged to both passive and active exercises. Both patients were back at work in five weeks after operation and have continued working ever since. Both have been seen within a week and both present practically normal functional shoulders. Each of them state that they have sustained injuries which would have caused a dislocation before operation.

125 WEST 58TH STREET.

NITROUS OXID WITH OXYGEN AS AN ANESTHETIC AGENT, WITH NOTES ON THE VALUE OF WARMING THE VAPORS OF ETHER AND CHLOROFORM.*

JAMES T. GWATHMEY, M.D.,
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Nitrous oxid with oxygen is classed as the safest anesthetic in the world, and chloroform the most dangerous. The patient requiring an operation may be in such a condition that these two anesthetics may change places. For instance, if a laparotomy is to be performed, or any operation requiring absolute relaxation, and the patient is not suited to this anesthetic, nitrous oxid would immediately become a menace to the life of the patient. After performing over 40,000 administrations of this combination, Hewitt, of London, narrows down the class suitable for this anesthetic to weak anemic men and middle aged women. It is the anesthetic especially suited to the anemic, and to tuberculous patients.

By preliminary medication with morphin alone, or morphin and hyoscin, any patient can be anesthetized satisfactorily with this agent. Strong, robust patients of either sex, the athletic, the alcoholic and the obese, or those whose air passages are obstructed in any way, are not the patients best suited for this anesthetic. Any of these patients at the height of surgical anesthesia may assume the opisthotonic posture and refuse absolutely to relax.

I have lately reported a number of interesting cases, all of them very successful, the operations lasting from ten minutes to two hours, the majority of them under what I call "mixed narcosis," that is, a preliminary dose of morphin and enough gas and oxygen to put the patient to sleep.

On account of the very small percentage of those troubled with nausea and vomiting, and also as this anesthetic has less effect upon the heart, kidneys and lungs than any other, surgeons are prone to attempt the impossible and select cases absolutely unsuited to this method of anesthesia.

To illustrate, I shall report the following cases:

* Read before the N. Y. Academy of Medicine, May 21, 1908.

CASE I.—An athletic alcoholic, age 38. Gas and oxygen was the anesthetic chosen. Operation, hemorrhoids. Patient went under anesthetic satisfactorily, but as soon as the operation was commenced he assumed the opisthotonic position and maintained it throughout the operation. Patient had no preliminary medication. This case was a failure because it placed the surgeon at a very great disadvantage.

CASE II.—Dilatation and Curettage. This patient was the wife of a physician and did not seem to be an appropriate subject for gas and oxygen. At the acme of surgical narcosis, when she should have been absolutely relaxed, she was perfectly rigid. If I pushed the anesthetic beyond this point, jactitation occurred and I was compelled to desist. I finally had to change to another anesthetic in order to successfully finish this simple operation.

CASE III was a woman who had previously suffered greatly from an ether narcosis. Gas and oxygen was used and was satisfactory so far as operation was concerned, but she was sick for eight or ten hours afterwards. However, she did not suffer nearly as much as on a previous occasion, so she was well satisfied. This patient told me that she would be nauseated on the slightest provocation. For instance, if anything went wrong about the house it would immediately affect her stomach.

The class of cases really suitable to be narcotized by this anesthetic alone, without any preliminary medication, is so very small that the anesthetist should be allowed to decide whether or not this anesthetic should be administered. By this, I mean that the surgeon should be told of its limitations and be prepared to have another anesthetic administered if this one fails.

In my opinion, gas and oxygen will be used more and more as a preliminary to some other anesthetic, usually ether. Used in this way, and with a suitable apparatus for switching to the next agent, we are enabled to anesthetize the patient quietly and quickly without compelling him to swallow a small amount of ether mucus in the first five minutes. The amount of nausea and vomiting has been greatly reduced, as also all other after-effects, by the proper use of nitrous oxid, as a preliminary to ether.

The usual procedure is to give the patient enough gas to render him unconscious of the fact that the ether is being turned on. In other words, full surgical anesthesia is never reached in this way. Nor is it necessary. There is always reflex swallowing before the patient reaches full surgical anesthesia after the ether has been turned on. This can be avoided by a deeper and slightly prolonged narcosis with the gas and oxygen, then switching to the ether with the closed inhaler, and after the heart and lungs have been fully stimulated by these two agents, switch again to warm chloroform vapor. By administering chloroform in this way we get all the valuable effects of the drug without running the slightest risk as far as the fatality is concerned, and increase the chance of an even recovery fully 50 per cent.

The value of warmed ether vapor as regards effects, has been known since '77, when Dr. Glover invented his portable inhaler, but no experiments had been made concerning the saving of life until my own in 1906. I have experimented with chloroform, ether and nitrous oxid gas, killing hundreds of animals in order to determine the exact value of heating the anesthetic to the temperature of the blood. I can state positively as a result of these experiments that all anesthetics are increased in value, as regards life, by heating them to the temperature of the blood, without decreasing the anesthetic effect. This applies more especially to chloroform. Chloroform is more than doubled in value by heating it to the temperature of the blood. For instance, using the same technic and regulating the amount of air, and also the temperature of the anesthetic, it requires about twenty minutes to kill one of the small animals with chloroform at 100° F. At room temperature, it required but eight minutes, showing conclusively that the warm chloroform is more than twice as safe an anesthetic as the cold.

In 1904 I proved conclusively that oxygen increased the value of all anesthetics as regards life without decreasing the anesthetic effects. Such definite statements should challenge more than passing attention. If chloroform is really doubled in value by merely placing the container in hot water from time to time, what right has anyone to administer it by the drop method without using this precaution? If this principle as stated is a fact it would affect all hospitals advantageously. This statement should be either proved or disproved by those vitally interested in this subject.

A combination of oxygen and any warmed anesthetic vapor is as nearly the ideal anesthetic as anything that we have reached up to this time. My own experience up to date is that we can get the best results by using these different anesthetics in a sequence or in combination rather than by using them alone. In fact, no one would be justified in narcotizing a patient with any of these agents without being prepared to switch, if conditions demanded a change.

The failures with gas and oxygen are all on the safe side. No deaths have yet been reported. In my laboratory experiments I find it almost impossible to kill animals with this combination. When asphyxiated, respiration usually recommences automatically. For all short operations, requiring from one to five minutes, such as extraction of teeth, opening superficial abscesses, passive movements of stiff

joints, removal of drainage tubes and dressings, etc., it is the anesthetic of choice. No one is justified in using a more dangerous anesthetic when this combination is available. Cyanosis and stertor are removed by the addition of the oxygen to nitrous oxid gas.

If morphin is used as a preliminary, a normal saline enema given while the patient is still unconscious, will relieve the thirst and mitigate materially the sickness which sometimes accompanies the administration of morphin.

From every standpoint the ideal routine administration should be about as follows:

1. In addition to the usual preparation the patient's nerves should be controlled by previous medication in either of the two following ways: (a) a suitable dose of morphin according to the age and condition of the patient; or, (b) an anema of seven ounces of saline solution and one of whiskey one-half hour before the operation. The patient will then come to the table in a suitable frame of mind.

2. The narcosis should be commenced with nitrous oxid and oxygen or nitrous oxid and air, and continued until full surgical anesthesia is reached with this agent, and then the ether chamber turned on gradually and slowly. In this way there will be no swallowing in the first five minutes.

3. The method of administration should now be changed to the closed inhaler and the anesthesia deepened by rebreathing. This should be continued until the whole system has been thoroughly stimulated by the ether.

4. A change should now be made to warm chloroform, given either by the vapor method or drop by drop.

5. This change to chloroform should be made when the patient is only lightly under the ether. Care must be taken not to allow the patient to come out sufficiently to exhibit any rigidity of the muscles. On the other hand, not to deepen the narcosis unnecessarily.

6. As the operation is drawing to a close a warm saline enema should be given and the anesthetic should be so lightened that the patient will exhibit signs of consciousness as the bandages are being applied.

7. Place the patient in bed with as little jolting and jarring as possible.

8. Darken the room and allow the patient to sleep until natural awakening occurs.

9. The enema should be repeated every few hours as required. That is, until the patient shows some effects of its administration.

124 EAST 16TH STREET.

THROMBOSIS OF THE LATERAL SINUS AND INTERNAL JUGULAR VEIN FOLLOWING SUPPURATIVE MASTOIDITIS, CAUSED BY ACUTE PURULENT OTITIS MEDIA; OPERATION; RECOVERY. A CASE REPORT.

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I. R., aged 35, came to the New York Eye and Ear Infirmary, complaining of severe pain in the left ear for the past three days. No history of previous ear trouble. Inspection revealed considerable congestion, bulging of the membrana tympani in the posterior superior quadrant and slight sagging of the superior wall of the canal at its inner end. Mastoid tenderness on pressure over the antrum and tip; no swelling or redness of the tissues behind the ear. Temperature, 100°; pulse, 88. A paracentesis was performed and blood mixed with pus discharged from the opening made in the tympanic membrane. The ear was syringed every three hours with a 1-5000 bichlorid of mercury solution. A laxative dose of calomel, and liquid diet were prescribed. Two days later the mastoid tenderness was not diminished, the discharge from the ear was less in quantity, however. Temperature, 101.8°; pulse, 96.

An operation was now decided on and the patient prepared. Urinary examination showed specific gravity 1,020; no albumin or sugar, no casts under the microscope; heart and lungs normal. General physical condition good. Ether was administered, and a curvilinear incision made behind the auricle close to its insertion extending from just below the mastoid tip to the supra mastoid ridge down to the bone. The periosteum was separated and the bone exposed. The cortex was normal and no sinus could be found upon its surface. The masoid process was very large and prominent. With a gouge the anterior portion of the mastoid apophysis close to the posterior wall of the canal was chipped away and large pneumatic cells extending to a considerable depth were exposed. These were soft, like putty, and were filled with pus, granulations and carious bone, studded here and there with large multinucleated protoplasmic cells (osteoclasts). The entire subcortical structure was carious and the rarefying ostitis had in many places formed typical Howship's lacunæ through the absorbent action of the osteoclasts and granulations.

At this stage of the operation another incision was made in the soft parts, the posterior occipital bisecting the first on a level with the center of the external auditory meatus and extending backwards for one-half an inch. This gave more room to work and better exposure of the operative field. The rongeur forceps were now brought into requisition and the entire cortex removed from the tip upwards and backwards to the masto-occipital suture. With a curette the carious cancellous tissue was scooped out, and in looking down into the opening the inner

table of the mastoid process was brought to view showing most beautifully the blue coloration of the lateral sinus beneath this thin plate of bone and marking the position of the sigmoid groove.

The antrum was then entered with a curette and all carious bone and granulations scraped away; free drainage was established between the tympanum and the antrum. The entire wound was irrigated with a 1-5000 bichlorid of mercury solution and the whole cavity loosely packed with iodoform gauze. A strip of the gauze was likewise placed in the canal and the whole wound enveloped in an iodoform and bichlorid of mercury dressing and bandaged. The temperature immediately after the operation fell from 101.8° to 99°, pulse 86. The patient was put to bed and came out of the ether without any bad effect.

Nov. 14th. The patient slept at intervals and was comfortable during the day; bowels have not moved; temperature at 6 A. M., 99.4°, pulse 100; at 6 P. M., temperature 101°, pulse 108.

Nov. 15th. Two compound cathartic pills were administered to the patient in the morning. He complained of pain in his head. No movement of the bowels. Two more compound cathartic pills were given at 8 P. M.; temperature at 6 A. M., 98.4°, pulse 90; temperature at 6 P. M., 102°, pulse 104.

Nov. 16th. Bowels moved twice; pain in the head continues; the wound was dressed; pain less; temperature at 6 A. M. 99.6°, pulse 90; 6 P. M., temperature 101.2°, pulse 108.

Nov. 17th. The patient slept fairly well; bowels have moved; less pain in the head; temperature at 6 A. M., 100°, pulse 96; at 6 P. M., temperature 101°, pulse 104.

Nov. 18th. The patient had a very comfortable night, but during the day he has been nauseated; his wound was dressed; temperature at 6 A. M. 98.6°, pulse 84; at 6 P. M., temperature 99.8°, pulse 90.

Nov. 19th. Patient slept well, bowels have not moved; calomel, gr. 1/10, soda bicarb., grs. v was given every two hours until four doses were taken, when bowels moved; the patient vomited about six ounces of curdled milk; temperature at 6 A. M. 98.4°, pulse 90; at 6 P. M. temperature 101°, pulse 100.

Nov. 20th. Patient slept fairly well; very restless all day; bowels have not moved; calomel 1/10 gr. administered every 15 minutes until three grs. had been taken; this was followed by fl. ℥viii laxative water and the wound was dressed; temperature at 6 A. M. 101.2°, pulse 100; at 9 A. M. temperature 101.2°, pulse 104; at 12 M., temperature 104.2°, pulse 132; at 2 P. M., temperature 104°, pulse 126; at 6 P. M., temperature 103°, pulse 128.

Nov. 21st. Patient had a comfortable night; bowels have not moved and laxative water was again prescribed; complains of pain in head; bowels moved; temperature at 6 A. M., 103°, pulse 120; at 9 A. M., temperature 99.8°, pulse 100; at 12 M., temperature 99.4°, pulse 100; at 3 P. M., temperature 101.8°, pulse 104; at 6 P. M., temperature 104°, pulse 118; at 10 P. M., temperature 104.2°, pulse 116; at 12 P. M., temperature 103.4°, pulse 110.

Nov. 22nd. The patient slept at intervals, very restless all day; complains of pain over region of spleen; on palpation this organ was found somewhat enlarged; bowels have moved; patient suffers from indigestion; acid nitric dil. gtt. 15, are given to him three times a day; temperature at 4 A. M., 102.4°, pulse 110; at 6 A. M., temperature, 102°, pulse 110; at 9 A. M. temperature 99.8°, pulse 104; at 12 M., temperature 100.2°, pulse 100; at 3.45 P. M. temperature 103°, pulse 108; at 6 P. M. temperature 103°, pulse 110; at 10 P. M. temperature 100.8°, pulse 96; at 12 P. M. temperature 101.2°, pulse 96.

Nov. 23rd. The patient has been thirsty all morning; refused nourishment; no pain. An alcoholic sponge bath was given him and acid nitric dil. gtt. 15, t. i. d. Temperature at 4 A. M. 99.8°, pulse 90; at 6 A. M. temperature 99.8°. pulse 100; at 10 A. M. temperature 102.6°, pulse, 110; at 12 M. temperature 103.2°, pulse 114; at 2 P. M. temperature 105°, pulse 120; at 2.45 P. M. temperature 104°, pulse 118.

On the 20th the temperature suddenly rose from 101.2° to 104.2°. It continued making sudden jumps up to the 23rd when it reached 105°, its highest point. At no time did the patient have rigors. There was no profuse perspiration and no general sepsis as characterized by asthenia, emaciation and ashy hue to the skin. Pressure made over the internal jugular and posterior part of the mastoid in the region of the sigmoid sinus elicited no pain nor could any cordlike swelling be felt on pressure at the inner edge of the sterno-mastoid muscle. The only sign diagnostic of thrombosis in this case was the high temperature, its sudden rise followed by its spontaneous fall to nearly normal. The patient complained of pain in the head, but this might have been due to the wound from the first operation. The pain was diffused over the entire left side and not localized. Vomiting occurred on the 19th, and while one of the symptoms of thrombosis, it is also a symptom of meningitis and cerebral abscess and not in itself pathognomonic of the disease.

Examination of the retina showed no papillitis present. The patient was now given a bath and prepared for operation. Ether was administered and with a curette the granulations in the wound were scraped away and the inner table exposed. This was cut away with the rongeur forceps and the lateral sinus laid bare from the knee to the jugular bulb. It appeared normal, no lymph covered its outer wall but on placing the finger over it a soft obstructing mass could be distinctly felt between its walls. There was no pulsation present. With a scalpel, incision was made along its entire length and a clot of a gelatinous consistency was found within. No bleeding was obtained from above or below. The clot was removed from above toward the torcular by gently curetting upwards, and a copious flow of blood soon followed. The hemorrhage was controlled by placing a compress of iodoform gauze within the opening made in the sinus and the entire wound covered over with bichlorid of mercury towels.

An incision was next made along the anterior border of the sterno-mastoid muscle commencing at the mastoid tip and extending downwards for

about four inches. The integument, superficial cervical fascia and the platysma myoides were cut through. The external jugular vein greatly collapsed and about the size of a thin cord was now seen crossing the sterno-mastoid muscle and separated from it by the anterior layer of the deep cervical fascia. A branch of the tempero-maxillary vein passing onward to join the facial vein was secured between two ligatures and cut. The facial vein was of extraordinary size and greatly distended. It entered the internal jugular vein at the level of the cricoid cartilage instead of at the angle of the jaw. The deep cervical fascia was now separated disclosing to view the internal jugular vein which was collapsed and unusually small in comparison to the facial vein, and some difficulty was experienced on this account in recognizing it at once. Lying to the inner side of it was the internal carotid artery with the pneumo-gastric nerve behind and between the two. The sheath of the internal jugular was opened and two ligatures placed over it as low down to the clavicle as possible and the vein cut between them. The entire vein was resected upwards from the clavicle toward the jugular foramen and divided close to the bulb. The facial, lingual, pharyngeal and supra thyroid veins were ligated and cut. The wound was thoroughly irrigated with a bichlorid of mercury solution and packed with iodoform gauze. The same treatment was accorded the wound in the mastoid bone and the entire head and neck was bandaged with an iodoform and bichlorid of mercury dressing. The temperature after the operation dropped to 99.4°. From November 24th to the 27th it fluctuated between 98.4° and 100°.

Nov. 28th. The temperature rose to 102.4° at 12 M. The wound was dressed and some pus was found beneath the fascia. This was washed away with a bichlorid of mercury irrigation and the temperature fell to 99.4.

Nov. 29th. The temperature rose again to 102.2° at 6 P. M. The wound was again dressed and irrigated with bichlorid of mercury solution, 1-5000; slight purulent discharge came from the wound. Temperature now fell to 98.4°.

Nov. 30th, the temperature fluctuated between 98.4° to 100.4°.

Dec. 1st. Temperature rose from 99° to 101.8°; the wound was dressed.

Dec. 2nd. Temperature oscillated between 100° and 102.2°.

Dec. 3rd. Temperature fluctuated between 99° and 100°.

Dec. 4th. Temperature jumped suddenly from 99° to 102.4°. The wound was dressed and irrigated with bichlorid of mercury solution; some sloughing tissue came away. The wound looked healthy and granulations were rapidly forming from the bottom.

Dec. 5th. Temperature fluctuated between 99° and 102°.

Dec. 6th. Temperature from 99.6° to 98.4° and has been normal ever since; wound was dressed.

From this date on the patient has steadily improved. His diet consisted of milk, beef broth and an occasional egg-nog. He is still kept on acid nitric dil. gtt. xv, t. i. d. for his indigestion and a laxative water when required. On December 10th, the patient was out of bed for one-half hour and walked about for the first time since the operation. On the 15th he was allowed to go home, the wound having entirely healed in the neck. He still comes to the Infirmary to have the mastoid wound dressed.

The interesting points in this case are:

1. That in an acute suppurative mastoiditis infection of the lateral sinus and internal jugular vein may take place with the formation of a thrombus and all the symptoms of a thrombosis be absent, except the temperature, which in this case was the only diagnostic sign of the disease.

2. The infection of the lateral sinus in all probability took place through the veins in the mucous membrane lining the antrum and tympanum as they were bathed in pus and necrotic granulation tissue. Emboli could easily be carried from these thrombosed veins to the lateral sinus through its intimate venous connections.

3. That the normal mastoid cortex is no indication of the condition of the cancellous structure beneath it any more than is the healthy looking cortex of an apple evidence of the condition within. I believe caries should be removed wherever found before structural changes take place, and not alone should the antrum and middle ear in cases of suppurative mastoiditis be thoroughly curetted for diseased bone, but the whole mastoid cortex should be broken down (regardless of its normal appearance) from the tip upwards to the temporal ridge and backwards towards the occipital bone, and the condition of the subcortical structure thoroughly explored. In other words, we should look for caries and not wait for it to find us.

I am well aware that there are some aural surgeons who deprecate this procedure as too radical, but I feel assured from my experience in these cases that success will oftener follow this course. Let us now see what are the pathological conditions of a simple rarefying ostitis, or caries. At the beginning of the inflammation the bloodvessels dilate and there is an exudation of serum and leucocytes. Here the process may stop and resolution take place, the bone returning to its normal condition, and we may never hear anything more of the case. On the other hand, should the micro-organism be more virulent the next step will be the formation of granulations which enlarge and destroy the bone by absorption. Pus may be present or not according to the intensity of the ostitis. If pus is absent the vitality of the granulations is unimpaired, providing the inflammation subsides. The granulations organize

into connective tissue and bone, the rarefying ostitis merging into a sclerosing ostitis. If pus is present the granulations undergo liquefaction and form a bone abscess or they may undergo fatty degeneration and caseation with the formation of cholesteatoma. As it is impossible to tell beforehand whether the rarefying ostitis is one that is going to resolve or not we had better be prepared to operate at once, the moment diagnosis of suppuration and caries of the mastoid is made, thereby preventing the risk of intracranial infection and jugular thrombosis.

38 EAST 51ST STREET.

REPORT OF A VAGINAL CESARIAN SECTION IN A CASE OF ECLAMPSIA.*

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BROOKLYN, N. Y.

Mrs. A., aged 25, was admitted to my service in the Williamsburgh Hospital, January 23rd. She had been married two years. She had scarlet fever in childhood, and about one year ago noticed some swelling about the feet and ankles. This quickly subsided under treatment. Her last menstruation occurred July 19th, 1907, making her nearly six months pregnant on entering hospital. About a week before admission edema of the face and ankles appeared, and since then she has had constant frontal headache with nausea and vomiting. The amount of urine eliminated was markedly diminished. She complained of great thirst. There had been no fetal movements for several days, though a fetal heart was distinctly heard. There was general edema. A uterine tumor extending to the umbilicus; the pulse, 84, of high tension. Her urinary output for the first twenty-four hours after her admission was twenty ounces, with but four grains of urea to the ounce. Albumin and granular casts were present. The patient was put to bed and placed on a milk diet. Her headache persisted. By the use of veratrum viride the pulse was kept below 60. The urinary output increased, and the urea rose to five grains to the ounce, the edema slightly diminished.

Notwithstanding this seeming improvement, two nights after her admission she developed convulsions; her pulse was but 64 at this time; she had two convulsions in rapid succession. Delivery was determined on. The cervix was extremely long and hard, and there was no dilation. Under chloroform-oxygen anesthesia a vaginal cesarian section after Dührrsen's method was made, and the child delivered by version. Owing to the small size of the child it was not necessary to make a perineal section of the levator ani muscle. A transverse incision was made through the vaginal vault in front of the cervix, and connected with a longitudinal incision through the anterior vaginal wall, the bladder peeled up from the front of the uterus, and held out of the way by a retractor, the uterus was drawn down by a volsella forceps, and incised longitudinally from below upward through the cervix to the internal os. The incision was then extended five inches up the front of the uterus, the hand introduced and a podalic version done. The cervical canal in this patient was 2¾ inches long, hard, and narrow.

The placenta and membranes were removed manually and the uterine wound sutured with chromic catgut sutures. The suturing of the anterior wall of the uterus was not so easily done as one might suppose from reading Dührrsen's article. The space afforded by this operation was a great disappointment to the writer, though one can readily see how the operation is an ideal procedure in these primiparous long cervices, without previous dilation, when prompt delivery is necessary, up to six or seven months. As an elective operation for the later months, vaginal cesarian section can have but a small place in obstetric surgery, for it is more difficult when the pelvis is contracted, as the uterus cannot be drawn down into such a pelvis—hence eclampsia must stand as its chief indication.

The recovery of the patient from the operation was satisfactory. The hemorrhage was insignificant and was controlled by a pack of iodoformized gauze in the uterus, which was removed the next morning. She had one elevation of temperature on the third day, which rose to 103°; her blood count, however, convinced us that she was doing something in her own defence. On the third day there was 80 per cent. polymorphonuclears, 24,000 white cells, the fourth day, but 78 per cent., and the leucocytosis increasing; the temperature gradually dropped. She made a slow recovery owing to an endocarditis and a persistent kidney lesion. The headache persists even now as well as some albumin and granular casts.

The two interesting points in this case, were first: that convulsions occurred with a pulse of low tension, at 60, and the other is the fact that it is not an easy thing to deliver a child of any size by vaginal cesarian section in a primipara, unless we have made a section of the vagina, so as to give more room and permit the uterus to be brought down. This was a case of renal toxemia of pregnancy, added to an existing nephritis of long standing.

287 CLINTON AVENUE.

* Read before the Brooklyn Medical Society, March 20, 1908.

A SIMPLE AND EFFECTIVE CHLOROFORM DROPPER.

Push a small aspirating needle through a cork into a vial containing chloroform, remove the wire that prevents the needle from clogging and an ideal dropper is obtained. Replacing the wire or withdrawing the needle will close the opening.—EDWIN B. ANDERSON in the *Journal of the American Medical Association.*

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WALTER M. BRICKNER, M.D., Editor

NEW YORK, JULY, 1908.

THE MURPHY TREATMENT OF GENERAL (FREE) PERITONITIS.

Every practising surgeon, not already thoroughly familiar with the treatment of free peritonitis elaborated by John B. Murphy, and with the physiological and pathological observations on which it is based, should carefully study the paper read by him at the last meeting of the American Surgical Association, and published in *Surgery, Gynecology and Obstetrics*, June, 1908. In this, the minute anatomy and physiology of the peritoneum are discussed in their relation to absorption, and the bacteriology, etiology and clinical aspects of perforated peritonitis are clearly presented. On these subjects we shall not here enter. We desire, however, for the benefit of those of our readers who have not yet had the opportunity of reading it in the original, to concisely state the features of the "Murphy treatment" of acute peritonitis, as presented more at length in his latest utterance:

The prevention of absorption is of the greatest importance. The Fowler position is maintained not only post-operatively, but from the moment the diagnosis is made and even, as far as possible, during the operation. Peristaltic rest is encouraged by withholding food. Cold is applied to the abdomen. The use of opium is condemned. Operation is performed as soon as possible. If the case is twenty-four hours advanced, gastric lavage is done before operation. In intensely poisoned, cyanotic patients intravenous saline infusion is also made pre-operatively. Narcosis is not started until the patient is ready for the incision. Ether is generally used, by the drop method; nitrous oxid gas, sometimes. The incision is made over the site of perforation, when this is known; otherwise on the right side. The leak is rapidly sought for and closed; a perforation should never be left unclosed. If the appendix is the cause of the peritonitis it is clamped and tied off quickly: burial of the stump consumes too much time. Speed is of great importance—"get in quickly, get out quicker." Irrigation is condemned:—it prolongs the operation, removes protecting leucocytes, carries pus toward the dangerous diaphragmatic zone and increases absorption. Evisceration and much handling are avoided. Drainage is always to be instituted. Fenestrated or split rubber tubes, without gauze, are inserted to the site of perforation, the cul-de-sac of Douglas and other pus pockets. Glass tubes cause strangulation.

After-Treatment,—Fowler position. Continued proctoclysis (Murphy). This is administered at the rate of one and one-half to two pints every two hours. The fluid, normal saline solution at a temperature of 100°, flows from a fountain syringe (kept warm between hot water bags) at a height of 6 to 14 inches above the patient. The flow is through a ⅜-inch rubber hose to a hard rubber or glass vaginal douche tip with multiple openings, bent at right angles and so fastened to the thigh by adhesive strips that it will not fall out of the rectum. The flow must be maintained by gravity alone, never by a constriction on the tube; there must be easy flow to and from the bowel to prevent over-distention and expulsion. Gastric lavage is repeatedly performed if there be nausea, vomiting or a tendency to gastrectasis. Antistreptococcic serum is given in streptococcic cases, where the leucocytic reaction is feeble. (The value of the differential leucocyte count is emphasized.) The dressing is changed as often as needed for comfort. The tubes are rotated a little every day to prevent closure of the fenestræ by adherent tissues. Suction and irrigation are condemned. Opium and other anodynes are never given. Adrenalin, strychnin, camphor and caffein are the best stimulants. Calomel is administered in small doses. If adynamic ileus develops, carminative, saline or alum enemata are administered by fountain syringe. Eserin and atropin are employed hypodermatically. If this treatment does not relieve, and especially if borborygmus is observed, mechanical ileus is present and demands operation.

The Murphy treatment is gaining the support

of most surgeons who have taken the pains to apply it properly. But more especially do we consider it worthy of thus detailing editorially because of the brilliant results achieved by it in the hands of its author. In his series of 51 cases, including 5 typhoid perforations, with 100% recovery, there were but two deaths,—one from double pneumonia on the sixth day, and one from mechanical ileus! That this series included very grave cases is shown by the fact that 7 had to be re-operated for circumscribed pus accumulations, and 6 for mechanical obstruction. It may well be said that the treatment of appendicits and of acute peritonitis is distinctively a triumph of American surgery.

THE RÔLE OF THE SAC IN THE PRODUCTION OF HERNIA.

That the ordinary varieties of abdominal hernia are all congenital to the extent that the sac is preformed, is an attractive theory, and, not unlikely, a correct one. If this be so, and, indeed, even if it be not so, the total ablation of the sac is important to effect a cure. In inguinal herniotomy as Kocher performs it the essential step is the invagination of the sac through a small opening in the aponeurosis of the external oblique above and external to the internal ring, as yet he has seen but very few recurrences in his large series of cases.

An English surgeon has recently claimed that the removal of the sac is all that is necessary to effect a cure of inguinal hernia. Whether this claim is too bold or not, it is quite evident that if a small peritoneal pouch is left, recurrence is invited; and probably lack of thoroughness in this regard is responsible for a large percentage of failures after so-called radical herniotomies. The sac should be traced back to, and tied off at, or even beyond, the peritoneal reflection itself. In order to be sure that this is accomplished it is advisable, in the inguinal operation, to first split the external oblique aponeurosis far enough to freely expose the internal ring. Indeed, this preliminary splitting of the external oblique, and high ligation of the sac are essential to the technic of Bassini's herniotomy as performed by him.

Surgical Suggestions.

Instead of suturing the skin after amputation of an extremity, it is sometimes better to bring the flaps together with broad strips of adhesive plaster, especially if the operation performed is for an arteriosclerotic condition.

"Black eye," developing in an infant, without any history of injury, should always arouse suspicion of scurvy (Barlow's disease). It is generally distinguished by lack of swelling, absence of bruise or redness of lids, and rapid gravitation of the blue discoloration to the lower lid and cheek. The orbital hemorrhage may take place on the other side, after a short interval.

Avoid touching the cornea during the administration of an anesthetic. The ocular reflex can be obtained just as well through the lids, and the pupils and motions of the globe offer the most definite indications of the degree of narcosis.

A one-sided conjunctivitis or irritative condition, with tearing, photophobia, and lid-spasm should always suggest the presence of a foreign body on the cornea or behind the lid. In the latter case puffiness of the upper lid develops very rapidly and is a diagnostic aid. A dark body is best seen against the iris; a light one, against the pupil. The patient's eye should be turned accordingly.

Don't pour hot oil into the ear to relieve pain. Heat can be applied much better in a hot mixture of glycerin, alcohol and water, which will not turn rancid or clog up the ear, and can be removed by syringing with water. A towel or large pad of gauze wrung out in boiling water and closely applied over the ear, covered with oil silk or "protective" rubber tissues, is better than a hot water bag.

Sudden one-sided diminution of hearing after bathing may indicate nothing more serious than water in the ear or a plug of wax which has swelled up and obstructed the canal. If no means of syringing is at hand, the instillation of ether and alcohol, equal parts, will dry up the plug and often cause it to disintegrate, with a corresponding improvement in hearing. Swollen seeds, peas or beans in the external canal, a frequent occurrence in children, can be treated similarly.

Intermittent mucoid or mucopurulent discharge from the ear without pain or fever suggest nasopharyngeal disease; in children, adenoids.

An old, narrow Graefe cataract knife is an ideal instrument for opening the drum membrane in otitis. Ethyl chlorid narcosis is the best for this brief operation.

Book Reviews.

The Internal Secretions and the Principles of Medicine. By CHARLES E. DEM. SAJOUS, M.D., Fellow of the College of Physicians and Surgeons of Philadelphia; Member of the American Philosophical Society, the Academy of Natural Sciences of Philadelphia, etc. *Volume Second.* Octavo; 1,873 pages; 25 illustrations. Philadelphia: F. A. DAVIS CO., 1907.

In this formidable volume of nearly 2,000 pages, which, by the way, is merely the successor of another of almost equal dimensions, the author has set forth upon a mighty task. He states that for the past twenty years, in the capacity of editor, he has been struck by the formless state of modern medicine, the contradictory theories, and especially the vast differences in the therapy of the same disease. He has come to the conclusion that this chaotic state is due to the "invalidity of our physiology." The task, then, to which he addressed himself is, briefly, this: to construct a system of physiology, both normal and pathological, upon the basis of which the phenomena of disease are to be explained. As a result of his efforts, he is enabled to formulate for the first time, what he believes to be, a "rational" system of therapy. The insinuations of such nihilists and skeptics as our esteemed Osler, Skoda, etc., are therefore no longer to be viewed by the profession with humiliation, and medicine will promptly take her long deferred place among the exact sciences.

It is not to be inferred that the author has evolved a new "school" of medicine or of therapy, comparable to homeopathy, osteopathy, etc.; the author takes great pains to set the reader's mind at rest on this point. He has invented no new drugs, no panacea, nor even a new serum. He merely attempts to show how the therapeutic measures now at our command have their specified indications according to physiological data that he has evolved. Empiricism is therefore cast aside with one sweep.

Such a program appears formidable indeed. How has the author attempted to carry it out? Not, as we might expect, by the microscope, the test tube or animal experimentation, but, peculiarly enough, by simply correlating the work of others. It seems, according to the author, that all the facts embraced within this volume had already been known; it merely remained for some one to grasp the broad significance of them and to present them in an orderly sequence. As the author states in his preface: "The present unsatisfactory condition of medicine is due to the fact that investigators do not avail themselves of the enormous array of solid data available to ascertain the truth."

The labors of the author as set forth in this volume have aroused in us feelings of awe if not, indeed, of admiration. We have before us as the consummation of his work, nearly 4,000 pages of solidly printed matter. When we state that the vast part of this material consists of quotations and citations from medical literature, and that these quotations embrace practically every branch of medicine, it will be evident to our readers what colossal labor was expended in this work. Nevertheless we feel, that as an attempt at propaganda, the gigantic scale upon which the author has placed this panorama before us, defeats to a certain extent its own ends. Alluring as the author's contentions are, there are few, we venture to say, who have the time and inclination to wade through a mass of reading matter of such huge proportions. We may as well confess at the outset, that we have made no attempt to read this book from cover to cover; we have, however, read a goodly portion of it, sufficient, we believe, to gain a fair idea of the contents and of the author's processes of reasoning. In this connection, we offer the consolation to the reader that the volume bears reading of isolated chapters very well; the author continually refers to his previous conclusions so that the necessary connection is easily obtained.

The key of this entire new system of physiology has been found by the author in the internal secretions. A mere summary of the author's conclusions would alone occupy a number of pages of this journal. We will therefore content ourselves by merely citing the more salient features:—1. The main function of the adrenals is to supply an internal secretion which absorbs the oxygen of the air to carry it to the tissue. 2. This substance is found in the red blood cells and is called "adrenoxidase." It is identical with the secretion of Starling and Bayliss. 3. It is the function of the leucocytes to convert the constituents of the ingested proteids into living proteids. The principle which endows the constituents of proteids with life is the adrenal active principle. 4. The pituitary body is the general and governing center of the spinal system and base of the brain, and governs all vegetative functions. The anterior pituitary body governs the functional activity of the adrenals, and therefore all oxidative processes in the body; the posterior pituitary body, through which the anterior pituitary body governs the adrenals, also controls the functional activity of the thyroid gland. 5. The sense of pain, touch, muscular sense, etc., are all initiated in the posterior pituitary body. It is also the center of all emotions and controls all the functions of the sympathetic system. 6. The adrenal system, composed of the pituitary body, the adrenals, and the thyroid apparatus, constitutes the immunizing mechanism of the body, by causing an excess of auto-antitoxin in the blood. 7. Rational therapeutics, therefore, should include measures which promote the formation of auto-antitoxin in the blood and phagocytes. This can be done by a judicious use of drugs that are now at our disposal.

Whatever may be said of the merits of this physiology, nobody will deny that it is as attractive as it is novel. The remarkable thing, as we have already observed, is the fact that it has slumbered all this time within the realms of physiological lore undiscovered. The rude shock to our accepted notions offered by the novelty of the above views, would at first impulse, incline one to frivolity, were not the erudition of the author, his enormously painstaking efforts, and the seriousness of his purpose plainly evident. That is why we have delved into this volume at some length, not only for the interest aroused, but also to give the author, if possible, the benefit of our modest judgment. Space forbids us to offer a detailed critical review of even those contentions into which we have investigated. We shall therefore content ourselves by merely offering some observations on the author's work as a whole.

In the first place, we cannot deny that the author's processes of reasoning are highly ingenious, and that he makes a strong case for some of his contentions. It must be understood, however, that his case depends almost entirely upon what would be called in a court of law, circumstantial evidence. Now it is essential, in order to prove a case by such evidence, that the facts be both sufficient and valid. These attributes, however, are, to our view, not always possessed by the data advanced by the author. In the first place, the gaps in the chain of evidence are, in parts, both large and numerous. Indeed, the author is forced to bridge many of these gaps by inserting statements labeled "author's contention." In other places, deductions hang upon the flimsiest webs of evidence. As regards the validity of the evidence, we can only say that our impression has been that the author acts the part of both judge and advocate in his citations. Only such statements as fit in with his scheme of reasoning are cited; none others.

We cannot offer a criticism of the author's theory proper, for the reason that it would require labor and research only commensurable with those of the author to enable us to do so. Even assuming, however, that what the author says is true, it seems to us that, after all, he has merely grasped upon certain phases of an immense problem rather than the fundamentals. In other words, the author offers to us merely another method of symptomatic therapy, rather than an etiological one. (By "symptomatic," we refer to both subjective and objective phenomena.)

The most exacting test, however, of any theory, is its value as a working basis. We can apply this test to the above theory from two points of view: first, as a method of therapy, and second, as a basis of therapeutic research. As a method of therapy, this theory has defects in two directions: first, in the symptomatic character as noted above; second, because it fails us in many diseases in which this theory is supposed to play its largest rôle. We

need only refer, as an instance, to the therapy of cancer as set forth in this volume, a method with which we totally disagree, and which, we believe, will be of no avail whatever in the treatment of this disease. As regards the second point, its value as a basis for research, it is our belief that, as with Hahnemannian doctrines, this theory would tend to discourage rather than to stimulate such research. It seems to us that had this theory held sway years ago, surgery could never have advanced to the position it now occupies, nor could such measures as antitoxin have ever been discovered.

At all events, we gladly pay this tribute to the author, that he has opened a very suggestive field, and that his work bears a large amount of consideration. It is to be hoped, as indeed the author pleads, that physiologists will regard the author's work in a more critical way than they have.

The International Medical Annual. *A Year Book of Treatment and Practitioner's Index. Twenty-sixth Year.* Duodecimo; 647 pages; 96 illustrations and 29 plates. New York: E. B. TREAT & Co., 1908. Price, $3.50.

This year's annual records the various advances in medical and surgical work, and also mentions noteworthy articles dealing with important subjects not necessarily new. Laboratory advance, such as the opsonic index, the more careful study of blood pressure and microscopic examination of the feces are described in some detail. The ocular tuberculin test, artificial hyperemia by Bier's method, technic of bloodvessel suture, intestinal anastomosis, etc., are some of the important subjects abstracted. This work, like the preceding volumes, is of use in obtaining a rapid survey of what is going on in medicine.

State Board Questions and Answers. By R. MAX GOEPP, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic; Assistant Visiting Physician to the Philadelphia General Hospital. Octovo; 684 pages. Philadelphia and London: W. B. SAUNDERS COMPANY, 1908. Cloth, $4.00, net; half morocco, $5.50, net.

This large and carefully planned volume ought to prove of great help to those preparing for a State examination in medicine. In it are compiled the questions of various State Boards, for the past four years. They are classified and arranged systematically, and each question is supplied with a concise but fairly comprehensive answer.

Books Received

Adenomyoma of the Uterus. By THOMAS STEPHEN CULLEN, Associate Professor of Gynecology, Johns Hopkins University; Associate in Gynecology, Johns Hopkins Hospital. Large octavo; 270 pages; 68 illustrations by Hermann Becker and August Horn. Philadelphia and London: W. B. SAUNDERS Co., 1908. Cloth, $5.00; half morocco, $6.50, net.

A Manual of Diseases of Infants and Children. By JOHN RUHRAH, M.D., Clinical Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore, etc. *Second Edition.* Duodecimo; 423 pages; 112 illustrations. Philadelphia and London: W. B. SAUNDERS Co., 1908. Flexible leather, $2.00, net.

Practice of Medicine for Nurses. By GEORGE HOWARD HOXIE, M.D., Professor of Internal Medicine, University of Kansas. With a chapter on the Technic of Nursing by PEARL L. LAPTAD, Principal of the Training School for Nurses, University of Kansas. Duodecimo; pages; 34 illustrations. Philadelphia and London: W. B. SAUNDERS Co., 1908. Cloth, $1.50, net.

A Text-Book of Surgical Anatomy. By WILLIAM FRANCIS CAMPBELL, M.D., Professor of Anatomy at the Long Island College Hospital, etc. Octavo; 675 pages; 319 original illustrations. Philadelphia and London: W. B. SAUNDERS Co., 1908. Cloth, $5.00, net; half morocco, $6.50, net.

Résumé of the More Important Communications Delivered at the Meeting of the Deutsche Geselschaft für Chirurgie, held in Berlin, April 21 to 24, 1908.

CZERNY of Heidelberg reported his results in the treatment of 59 cases of carcinoma by means of the high tension and high frequency current (spark). The results obtained in superficial cancers are better than those obtained by the *x*-ray or radium. In deep cancers extensive destruction of the cancerous foci is obtained but not sufficient to bring about cure. The treatment is very painful, requiring deep anesthesia.

KOCHER of Berne has resorted to the transplantation of thyroid into the diaphysis of the tibia. This procedure he believes easier and less dangerous than the intrasplenic implantation first suggested and carried out by Payr. Kocher performs the operation in two stages; at the first operation the cavity is gouged out and filled with a silver ball in order to prevent the cavity from closing up; at the second, the extirpated thyroid is placed into the cavity and merely covered by periosteum.

PAYR of Greifswald reported the further history of his renowned case of cretinism, in which he transplanted a thyroid into the spleen. The operation was done 28 months ago. The condition during the first six months after operation improved considerably; the weight and height increased, the child began to talk and there was marked intellectual improvement. Since then, however, the condition has been quiescent. The inadequate result, Payr believes to be due to the fact that the case was one of cretinism and myxedema and not of pure myxedema alone. In the former, there are lesions in the cerebrum, which of course, will not be affected by thyroid.

HABERER of Vienna reported some successful results of the transplantation of adrenal tissue into the kidney.

LEXER of Königsberg reported some results of the transplantation of joints in cases of ankylosis and resections. He has used joints obtained from fresh cadavers, and from amputated extremities. His results have been better with the latter. In one instance, it is of interest to note that he transplanted a right knee joint into the left extremity of a patient, and obtained a highly satisfactory functional result.

HEIDENHAIN of Worms reported an instance in which he transplanted an entire tibia after a complete extirpation of this bone for sarcoma. The bone underwent a rarefying ostitis so that a fracture resulted at the end of three months. The periosteum, however, is intact and is forming a bony deposit.

BRENTANO, NEUMANN, BRAUN and FUNKE demonstrated similar cases.

BIER of Berlin announced a new method for obtaining a local anesthesia in an extremity. After driving as much blood as possible out of the extremity, a rubber bandage is applied above the site of operation; the turns of the bandage should not overlap each other. Another bandage is then applied below the site of operation. A large vein is then exposed and about 100 ccm. of a ¼ per cent. Novocain solution are injected. An analgesia is always obtained but not an anesthesia. This method the author has found particularly applicable in elbow and knee resections and in amputations. The method is not dangerous and in but few instances were symptoms of intoxication noted. These can be easily relieved by a removal of first the lower bandage, then the upper; or by an infusion of salt solution.

HOCHENEGG of Vienna reported a case of akromegaly of five years' duration in a patient 30 years old, in which he removed an adenoma of the hypophysis by the nasal route. Within a few days after operation, alleviation of symptoms was noted, and at present there has been a marked retrogression of all symptoms. This is particularly evident in the diminished size of the hands, feet and jaws.

PAYR of Greifswald reported a case of hydrocephalus in which he resorted to drainage of the dilated ventricles by the transplantation of the large saphenous vein. The vein was inserted between the cavity and the subarachnoidal space. The result, thus far, is good. The author based this operation upon the fact that histologically the transplantation of a bloodvessel into an organ or tissues is an eminently feasible thing. Payr suggests the wide applicability of such a procedure.

KAUSCH of Berlin reported that the results obtained in

14 cases of hydrocephalus by means of subcutaneous ventricular or subarachnoidal drainage were in every instance failures.

DOLLINGER of Budapest reported 200 cases of cervical tuberculous adenitis operated upon by a subcutaneous method. The incision is made in the back of the neck. The operation is difficult and consumes much time but obviates a scar. Of the 200 cases 167 were cured.

BRAUN of Zwickau reported a case of successful resection of the abdominal aorta. The resection was necessitated by a tear made during the course of the removal of an adherent neuroma of the sympathetic ganglion. A suture of the tear was attempted but without success; the affected area of the aorta was resected and the ends sutured together by the method of Stich.

VON HACKER of Graz reported a case of resection of a part of the cervical esophagus for carcinoma, with reformation of the esophageal canal by means of a skin flap made from the neck. The operation is too complicated to be described in detail, but it involves preliminary gastrostomy and a laryngectomy. The patient is well one and a half years after operation and has gained 14 kg. in weight.

GOTTSTEIN of Breslau reported six cures of cases of cardiospasm, obtained by inserting into the stricture, by a special apparatus, small rubber balloons.

BRAUER of Marburg reported the results obtained by making an artificial pneumothorax in cases of tuberculosis and bronchiectasis. He believes this procedure is of much value.

FRIEDREICH of Marburg recommends the resection of all the costal cartilages on one side for advanced cases of tuberculosis or such as do not respond to the conventional methods of therapy. The results obtained by the author thus far have been very encouraging. This is seen in the reduction of temperature, diminution of expectoration, gain in weight and amelioration of subjective symptoms.

The same author demonstrated specimens derived from dogs in whom an entire lung was resected a year ago. The operations were withstood by the animals without any reaction. It was found that the heart became dislocated into the space previously occupied by the resected lung and occupied the axillary region. The remaining lung would also partially fill this cavity, and the diaphragm rose upon the affected side considerably. The author believes that mediastinal emphysema can be obviated by the correct disposition of the bronchial stump.

SEIDEL of Dresden recommends partial chondratomy of the first ribs for beginning apical tuberculosis, with the object of obtaining fixation for this region. (?)

SCHMIEDEN of Berlin demonstrated an apparatus devised by Brat whereby the patient takes the anesthetic under increased in- and expiratory pressure. The apparatus serves the same purpose as the Sauerbruch chamber but is immeasurably simpler.

MAYER of Brussels demonstrated a similar apparatus.

Suture of the Lung (*Ein Beitrag zur Lungennaht*). HOTZ, Basel. *Deutsche Zeitschrift für Chirurgie*, March, 1908.

From a consideration of the success in the treatment of a case of penetrating wound of the lung, and from a study of the literature and experimental work, the author concludes that even apparently fatal penetrating wounds of the thorax and lung are indications for operative treatment. We can combat the evil effects of the pneumothorax by opening the chest widely and stitching a portion of the lung into the wound. Complete closure of the chest is recommended because it allows the lung to expand and, according to the experiments of Talke, makes secondary infection of the pleura a less likely complication. In this way, a primary healing of the injured lung and thorax may be attained and the patient put into the best possible condition to withstand later interventions, should secondary infection of the pleura occur.

Conservative Operations for Sarcoma of the Long Bones (*Zur Frage der konservativen Operationsmethoden bei den Sarkomen der langen Röhrenknochen*). BORCHARD, Posen. *Deutsche Zeitschrift für Chirurgie*, April, 1908.

The author makes a plea for conservative methods in the treatment of sarcoma of the long bones. In reviewing his own results, he finds that whenever the extirpation of the tumor was carried out in a thorough manner, there was no local recurrence. When we consider that involvement of the regional lymph nodes is of great rarity, that the tumor is frequently so well circumscribed that its radical removal without amputation is feasible, that metastases may be present long before they produce physical signs, and finally that good function of the limb may be obtained by the less radical excision of the tumor alone—we must needs be impressed by the correctness of the view that conservative treatment is to be preferred. Von Bramann's method for cases of sarcoma of the head of the tibia is recommended. It consists of the excision of the tumor and the implantation of the head of the fibula into the lower end of the femur.

The author quotes a case in which the function of the knee-joint remained almost perfect, although a piece of the femur, 27 cm. long, had been resected.

Where the shoulder joint is the seat of the disease, Gersuny's suggestion to affix the arm to the thorax after proper shortening and suture of the muscles has been done, is worthy of a trial. In cases of extensive resection of the arm or clavicle, we will also be agreeably surprised with the amount of function retained. When we are dealing with smaller bones, such as the radius and ulna, the advisability of attempting autoplastic operations must be entertained.

Lesions of the Median Nerve as a Complication of Colles' Fracture (*Die Schädigung des Nervus medianus als Komplikation des typischen Radiusbruches*). BLECHER, Strassburg. *Deutsche Zeitschrift für Chirurgie*, April, 1908.

The author discusses the etiology, symptoms and therapy of those lesions of the median nerve which either directly follow a Colles fracture, or which are produced by pressure of a large callus, and he briefly reviews nine cases gathered from the literature. Owing to the protected position of the nerve, it is rarely torn, although stretching by reason of severe trauma with marked deformity, and minor pressure effects due to a large callus, are not so uncommon.

In the case of primary injury, motor paralysis of some of the lumbrical muscles, of the abductor brevis pollicis and opponens have been observed. As for disturbances of sensation, these are confined to the typical area of distribution. Corresponding to these we may find vasomotor and trophic changes. There may be complete regeneration with total disappearance of symptoms, or a certain amount of sensory and motor impairment may persist. When the nerve injury is primary, directly following the fracture, we should follow an expectant plan of treatment, employing the usual medical procedure with a view to expediting restitution of function. If, after 47 days, the reaction of degeneration shows no tendency to disappear, and there is little or no return of sensation and motion, then operative intervention is indicated.

The secondary lesion of the nerve due to the presence of an abnormal callus, is usually accompanied by symptoms which appear 4 to 10 weeks after the fracture. There are pains along the median nerve and in the fingers, paresthesiæ in the thumb, index or middle finger, with varying amounts of sensory palsy. Here the operative treatment is indicated early so as to arrest the destructive action of the compressing callus.

Punch Fractures. HAROLD BURROWS, London. *British Medical Journal*, March 28, 1908.

The author calls attention to the fact that fractures of one of the metacarpal bones following a blow with the clenched fist are more common than is generally supposed. In the author's series of eight cases, four types were noted: 1. Fracture of the first metacarpal bone not involving the articular surface. 2. Bennett's fracture, or fracture of the proximal articular surface of the thumb metacarpal bone. 3. Fracture of the head or shaft of one or more of the metacarpal bones. 4. Fracture of the base of the fifth metacarpal bone, resembling Bennett's fracture of the thumb. The fractures are usually mistaken for sprains. It is important to recognize and treat these

injuries as fractures for the reason that occasionally osteo-arthritic changes occur, which result in more or less disability of the affected finger.

Removal of the Patella for United Comminuted Fracture. CASSIUS C. ROGERS, Chicago. *Illinois Medical Journal,* June, 1908.

The case is that of a medical student thirty years of age who had received a blow on the knee from a heavy box. The left patella was fractured. He was in the hospital and had a support for the knee for seven months, fibrous union having taken place. One could get two or three fingers between the fragments. Eleven months after the first fracture, he slipped while going down stairs, breaking this fibrous union. Extensive swelling took place, which finally subsided and the two fragments were sutured together with silver wire. Six months after the operation, there was a distance of three-quarters of an inch between the two fragments. Fifteen months later, his knee gave way under him and he fell to the floor, the silver wire sutures giving way. As the previous operation had proved unsuccessful, it was decided to remove the patella and unite the quadriceps extensor muscle to the cut patellar tendon. The wound healed by primary union and the patient was back at his studies in three weeks. There has been no discomfort since the operation, the patient is able to support his weight on this leg perfectly and flexion and extension are as good as before.

Hare-lip and Cleft Palate. A. H. FERGUSON, Chicago. *Journal of the American Medical Association,* May 9, 1908.

While the technic of the operation for simple hare-lip is easy, much depends on the care and attention to details. In uncomplicated cases, no matter what the nature of the defect, the operation should be done as soon after birth as possible. He advises, however, against operating during dentition, and if delayed until the teeth appear, defers operating until they have ceased to erupt. If complicated with cleft-palate, his practice is to restore the normal shape of the alveolar processes first, and at the end of a week to operate on the lip. His operation is, in principle, the same as that of Fenger. The essential points are: (1) The removal of no tissue; (2) the approximation of wider raw surfaces than in the older operations; (3) the application of three rows of sutures, skin, mucous membrane and tension sutures. The incision is made at the junction of the skin and mucous surfaces, imitating in this Tait's flap-splitting operation, the flaps being turned posteriorly. In addition to the sutures, Ferguson uses oxid of zinc adhesive plaster strips passed tightly under the chin and upward on the cheeks, crossing over the nose to the forehead. Where the strip passes over the eye it is twisted into a cord. These relieve the tension on the sutures. For cosmetic reasons it is necessary to construct a normal nostril, which must be done by an osteotomy on the side opposite the cleft. The essential thing is the restoration of the bony frame work by the osteotomy. A cleft-palate operation is a major operation and should seldom be performed at the same time as that for hare-lip. The younger the subject the graver the operation, but the result is best when it is performed at an early age. In case of extensive clefts it is not advisable to do the whole at one sitting; one or more crowding operations should precede the final closure in case of wide clefts. The physician should never guarantee perfect freedom from nasal intonation. The child should be perfectly well at the time of the operation, which must be selected to suit the case, and Ferguson describes at length a method employed by him with success when the two sides of the cleft ascend upward obliquely, as in a Gothic arch and when the cleft extends into one nostril. Two mucoperiosteal flaps are liberated, one from the inner or nasal segment, and the other from the outer or oral segment. These flaps are overlapped, bringing the two raw surfaces in contact and held in position by two rows of interrupted silk sutures. This operation is suitable for all ages, and in all cases the speech was improved. Other operations (Davies-Colley, Lane, Brophy) are described, as performed by the author, in more or less detail. In his opinion any plastic operation on the soft structures, coextensive with the indications to close the cleft is better than an operation on the bones. The chief causes of failure in all cleft-palate operations, in Ferguson's opinion, are: (1) Tension, (2) unskilfulness and devitalization of the tissue by bruising, etc., (3) unsuitable local and constitutional condition, (4) failure to select a suitable operation for the case in hand, and (5) poor nursing. As a rule, the mother is an unsuitable nurse, and the surgeon should insist on having the patient in a hospital and under complete control.

Treatment of Hemorrhage After Operations on the Nose, Naso-pharynx, and Tonsils. OSCAR WILKINSON, Washington, D. C. *Journal of Ophthalmology and Oto-Laryngology,* June, 1908.

Slight bleeding can usually be controlled by adrenalin, or by hydrogen peroxid applied on a small, firm, moist cotton swab. Clots should be removed and the nose cleaned and dried as thoroughly as possible, first. Nitrate of silver, 30-40 per cent., may act well when other styptics fail. If a bleeding point can be detected, the use of the cautery is indicated. If not promptly controlled by these measures, the nose should be packed with strips of gauze. In hemorrhage from the naso-pharynx, as it may be observed after operative removal of adenoids, styptics, such as tannin and antipyrin are of service, but it may be necessary to tampon the posterior nares. If a Bellocq's canula is not at hand a shot may be attached to a strong silk thread, dropped through the nose into the naso-pharynx, and drawn out through the mouth with a pair of forceps. A large plug of gauze saturated in tannin and antipyrin is now attached and drawn back so as to cause compression in the bleeding area. Post-operative tonsillar hemorrhage, unless severe, usually yields to ice water gargles. Styptics, especially preparations of iron, obscure the field and are unreliable, but strong solutions of silver nitrate (30-60 per cent.), tannin-glycerin, or tanno-gallic acid, act well. A single point may be touched with the cautery. Digital or instrumental compression with some form of clamp is effectual, but may cause reflex gagging and vomiting, and not be tolerated. Surgical treatment consists in the twisting of the arterial twig, ligation of the tonsillar stump, tying a purse-string suture about the stump, or in total excision of the stump, packing the tonsillar cavity and closing it up by sewing the anterior and posterior pillars together. Wilkinson has devised a curved needle for rapid placing of the stitches. Ligation of external or common carotid is hardly justifiable, and, what is more, is not always efficacious. The most valuable internal remedy is undoubtedly opium, both for its action on the circulation and for relief of pain and anxiety. The effect of ergot is doubtful, as is that of adrenalin. Stimulants are contra-indicated, unless the patient has fainted from loss of blood, and hemorrhage continues after he has regained consciousness. Any constriction about the neck, such as a tight collar, should be removed, the patient should take deep inspirations, and should sit up, not lie down. Tonsillar operations on adults should be undertaken with caution, lactate of calcium used internally in 20-30 grain doses, several times daily in case of any tendency to hemophilia, preference given to snaring or crushing over cutting procedures, and the patients kept under observation for some time after operation. Tonsillotomy should not be performed immediately before, during, or after menstruation.

Difficulty in Respiration and Deglutition Due to a Large Thymus in a Child Ten Weeks Old. Operation, Cure (*Behinderung der Atmung und der Nahrungsaufnahme durch eine zu grosse Thymus bei einem zehn Wochen alten Kinde. Operation; Heilung*). W. HINRICHS, Hamburg. *Berliner Klinische Wochenschrift,* April 27, 1908.

The child was admitted to the hospital for a large angioma of the ear. It was noticed in the course of the examination that the child was poorly developed, pale, and that its respiration was labored and stridulent. The child also swallowed with much difficulty. During expiration and with the head extended, a small tongue-shaped tumor was noted on the left side of the jugular notch. In the course of observations the child appeared to be losing

ground and an operation was decided upon. A longitudinal incision in the lower part of the neck was made; the capsule of the thymus was split, and the largest part (about 6 gr.) of the gland was removed. Respiration became promptly normal and upon the first feeding no difficulty in deglutition was noted. One month later the child was reported well and gaining in weight.

The Treatment of Gastric Ulcer. CHARLES LYMAN GREENE, St. Paul, Minn. *The St. Paul Medical Journal*, June, 1908.

There are many conflicting opinions as to the medical or surgical treatment of gastric ulcer. We still lack figures of a convincing nature, which might absolutely determine what cases are surgical, what are medical and what belong to the boundary line; yet into this darkness there has been thrown sufficient light to enable us to say that only in exceptional cases is surgical interference justifiable as a primary measure. In many instances a faulty diagnosis is made and what seems to be a "surgical ulcer," at operation, turns out to be something else.

The treatment of gastric ulcer seems to be essentially medical, the form of treatment varying with the case. If we compare various forms of treatment, we find that fundamentally they depend upon absolute rest, a course of treatment sufficiently prolonged, and the introduction of food of such a character and in such quantity as will at once conserve safety, comfort and nutrition. The treatment must be controlled wholly by the symptoms, state of nutrition and individual peculiarities of the case. The treatment of complications falls under three heads: pyloric spasm, hemorrhage and perforation. The former is met not by the administration of morphin alone but of atropin, or better still, eumydrin, together with the administration of an alkali. Hemorrhage in medical cases is seldom fatal and is ordinarily relieved by absolute quiet and functional rest. The use of silver nitrate in routine cases seems to be justified by clinical results. There are many neuroses associated with gastric ulcer which should be recognized. Psychotherapy reinforces to a remarkable degree the effects of medication.

Chronic Ulcer of the Stomach and Duodenum. WILLIAM J. MAYO, Rochester, Minn. *The St. Paul Medical Journal*, June, 1908.

On account of the anatomical relation between the stomach and the duodenum, there is a close association between the organs in function and in pathology. The stomach acts as a temporary storehouse for food, the five-sixths lying to the left being concerned in storage and maceration, the other sixth, lying to the right, carrying on the grinding process. The digestive processes are the result of chemical stimulation rather than nerve force. One of the factors in the formation of an ulcer is the traumatism inflicted in the grinding pyloric end of the stomach and that portion of the mucous membrane of the duodenum which receives the physical impact of the acid chyme as it is injected through the pylorus.

When an ulcer has once formed it has a tendency to penetrate into the muscular coat and is periodically irritated by the physiological action of the muscles, and by the introduction of food particles into its depths, giving rise to pain which is so characteristic of the disease. The average history of the patients with chronic ulcer shows that the disease has existed for some years. The periodicity of the attacks is as well marked as are the attacks of appendicitis or gallstone disease, the only difference being that in the early history the exacerbations are to be measured by days or weeks and the intervals by months or years of comparative freedom. The most valuable means of diagnosis lies in the history of the patient. There is usually an excess of hydrochloric acid. Pain is seldom absent. Hemorrhage is misleading, as it may be due to a cirrhosis of the liver. The complaint of gas in the stomach is nearly always a constant symptom. Chronic ulcer sooner or later involves the peritoneum. Local peritonitis over the seat of the ulcer is not infrequent, and in many cases perforation occurs with slight leakage more or less protected by exudate, giving rise to attacks of regional peritonitis. The result of a chronic ulcer is a permanent narrowing of the lumen. In a certain percentage of cases a tumor can be felt. The chief causes of death are hemorrhage and perforation. Ulcer of the duodenum rarely becomes malignant, but does interfere with the progress of the food, so that gastrojejunostomy is the operation of choice, supplemented in special instances by excision.

Primary Carcinoma of the Appendix. A. E. GARROW and C. B. KEENAN, Montreal. *The Montreal Medical Journal*, May, 1908.

Two cases are reported. (1) Female, age 21, admitted to the hospital with pain in the right lower abdomen. For seven years she had had a soreness in the right lower abdomen which was aggravated by overexertion. Four weeks before admission she had a severe attack of pain with all the symptoms of appendicitis. Examination revealed some tenderness on pressure over McBurney's point and a small tender mass could be palpated two fingers' breadth below a line running from the umbilicus to the anterior superior iliac spine. Operation showed a slightly adherent appendix, microscopical examination revealing a cubical-celled carcinoma infiltrating all the coats of the appendix.

The second patient was a girl, aged 13, complaining of pain and tenderness in the right iliac region. Extreme tenderness developed in the appendix region associated with an increased pulse rate and moderate fever. The symptoms all pointed to a perforated appendix. The appendix was found lying over the brim of the pelvis. A portion of it was gangrenous. There was a small new growth blocking the lumen just proximal to the swollen portion, sections of which showed carcinoma.

Both patients made uninterrupted recoveries. In late years systematic examination of all appendices removed has revealed the fact that primary carcinoma of the appendix is not a rare condition, for eighty-four cases have been reported.

Hemorrhagic Infarction of the Intestines (*L'infarctus hémorragique de l'intestin par oblitération veineuse ou artérielle*). MAUCLAIRE and JACOULET, Paris. *Archives générales de Chirurgie*, March and April, 1908.

Hemorrhagic infarction of the intestines follows either venous or arterial occlusion alone, or is due to occlusion of both vessels at the same time. We can produce experimental lesions in animals, identical with those seen in man. Infarction of arterial origin is most frequently brought about by cardiac or aortic embolism. Venous infarction can usually be traced to portal thrombosis, to some systemic disease, or to some inflammatory or neoplastic process of the intestinal tract or of the pelvic organs. Clinically, we can divide the symptoms into the early manifestations—severe abdominal pain, hematemesis, melæna and diarrhea; and into the later signs of intestinal obstruction. The prognosis is always grave, and spontaneous cure is rare. The diagnosis, which is relatively easy to make in the cases of embolism of the mesentery, is extremely difficult in the venous thromboses. As for treatment, resection of the infarcted loop and of the section of mesentery involved, meets the indications.

Hints in the Post-Operative Treatment of Laparotomies (*Einiges über die Nachbehandlung Laparotomierter*). M. JERUSALEM, Vienna, *Muenchener Medizinische Wochenschrift*, May 26, 1908.

The author has used large glass suction cups over laparotomy scars and tender regions of the abdomen to relieve pain due to adhesions, exudates, etc. Some patients continue to have severe pain after operation to which no cause can be assigned and which resists treatment. In all these cases relief is afforded by the daily use of suction for 20-30 minutes. To show the effect of the cupping, suction was applied for 5 and 10 minutes in two laparotomy cases immediately before operation. The skin and subcutaneous tissues, the cecum and adjacent omentum were found actively hyperemic. Experiments on the cadaver show that the cecum and adjacent small intestine are displaced by the treatment and that therefore adhesions will be stretched. Another effect is the increase of the blood supply, which favors absorption of adhesions and exudates. Clinically the results have been encouraging.